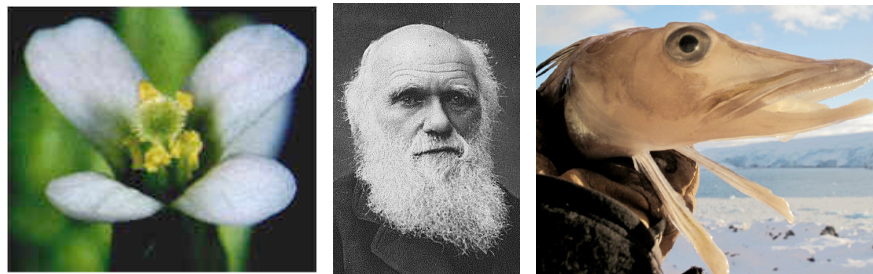
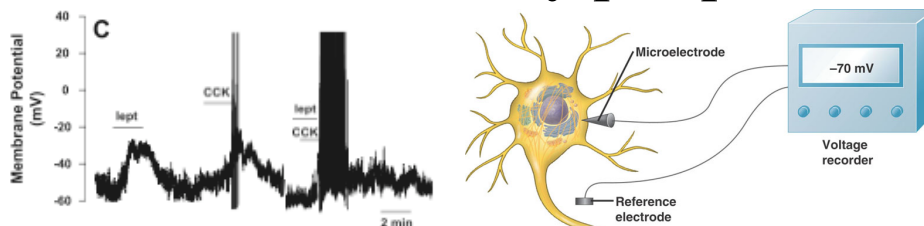


Bi212:Organisms

A CLASS COVERING PLANT & ANIMAL
PHYSIOLOGY AND DEVELOPMENT



with an evolutionary perspective



and a focus on the experimental data we use to build a scientific worldview

SYLLABUS FOR SPRING 2021

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Bi 212 General Biology II: Organisms

For more information see our

Canvas based Website

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Bi 212 Schedule Spring 2021

Week	Lectures			Lab Section activities
	Date	Distance lectures and Homework	In Class	
1	3/29	1. Material and Energy flow	Intro	1. Intro
	3/31	2. Enzyme Kinetics	Electric cells	
	4/2	3. Temperature Regulation and BMR	Enzymes	
2	4/5	4. Saper Paper and the importance of size	Temperature	2. Enzymes
	4/7	5. Basics of plants, recent 212 relevant papers	Saper stuff	
	4/9	6. Plant growth and Development	Week in review	
3	4/12	7. Driving Force & Ψ_w	Root development	3. CFTR
	4/14	Homework #1	Crossing membranes	
	4/16	8. Transpiration	Quiz 1	
4	4/19	9. Phloem, Serna stomata paper	Transpiration	4. Transport Statistics
	4/21	10. Animal transport	Serna Paper	
	4/23	11. capillary transport and pacemakers	Animal Transport	
5	4/26	12. Respiratory pigments	Review	5. Student Investigation: planning
	4/28	Homework #2	Hemoglobin	
	4/30	13. Goose Paper and Nutrition	Midterm 1	
6	5/3	14. plant nutrition	Transport review	6. Begin research proposal
	5/5	15. digestion	Roots at work	
	5/7	16. water reuptake	Small Intestines	
7	5/10	17. cholesterol	Cholera & CF	Intro Peer Review
	5/12	Homework #3	G&B paper	
	5/14	18. mineral homeostasis	Quiz 2	
8	5/17	19. Blood sugar	Iron	Methods Peer Review
	5/19	20. plants and light	Beta cells	
	5/21	21. Auxin	Photobiology	
9	5/24	22. Flowering	Review	Discussion Peer Review
	5/26	Homework #4	Plant signals	
	5/28	23. Fertilization	Midterm 2	
10	5/31	HOLIDAY, NO CLASSES	NO CLASS!	Presentations
	6/2	24. Animal Development	Sperm and egg	
	6/4	25. Neurons	Review	
Finals Week	6/11	Final Exam Friday June 11th 10:15am		

This schedule is subject to change upon the discretion of the instructor, but it probably won't.

Schedule of Due dates

	Monday Midnight	Tuesday Midnight	Wednesday Midnight	Thursday Midnight	Friday Midnight
Week 1	1. Introduction to class, material and energy flow in cells	Prelab 1	2. Enzyme Kinetics Reading: Symphony paper	Lab 1	3. Temperature regulation
Week 2	4. The Saper Paper and physiology of size Reading: Saper paper	Prelab 2	5. Basics of plants, recent 212 relevant papers	Lab 2 Enzyme Kinetics	6. Plant Development
Week 3	7. Driving Force & Ψ_w	Prelab 3 Parts of an introduction	Homework One	Lab 3 CFTR	QUIZ 1 IN CLASS 8. Transpiration
Week 4	9. Phloem, Serna Reading: Serna paper	Prelab 4 measuring transport	10. Animal transport	Lab 4 Transport data Stats	11. capillary and pacemaker
Week 5	12. Respiratory pigments	Prelab 5	Homework 2	Lab 5 Project	EXAM 1 IN CLASS 13. Goose and Nutrition Reading: Goose paper
Week 6	14. plant nutrition	Library Use Prelab	15. digestion	Lab 6 Project Outline	16. water and fat
Week 7	17. cholesterol	Draft Introduction section due	Homework 3	Intro Peer Review	QUIZ 2 IN CLASS 18. mineral homeostasis
Week 8	19. Blood sugar Reading: Iron paper?	Draft Methods section due	20. plants and light	Methods Peer Review	21. Auxin
Week 9	22. Flowering	Draft discussion section due	Homework 3	Discussion Peer Review	EXAM 2 IN CLASS 23. Fertilization
Week 10	HOLIDAY Nothing due	Research proposal due	24. Animal Development Reading: Eve paper	Project party	25. Neurons

This schedule is subject to change upon the discretion of the instructor, but it probably won't.

Remote learning insert

Faculty Statement

This term we will be trying to accomplish from afar what has been and will be again a process that takes great advantage of being physically present. I hope that we can build productive and enjoyable relationships even though we won't get to meet in person. I am confident that we offer a class that will prepare you very well for upper division courses and standardized exams. I hope that the practice we do of applying scientific reasoning to novel problems will stretch all of us and make us all better students and citizens.

I am going to present material about how plants and animals work at the level of whole-body systems all the way down to the level of a key set of cells that act as master regulators of the processes we look at. We will stress learning about the course content from the experimental data that has enabled us to build models of how things work. I think it will blow your mind when you begin to recognize patterns that all these processes share, and thus seem to constitute a story of how life works. I think you will love tackling biology as a scientist must – from experimental evidence and scientific publications.

I have always thought of my teaching style as one that prioritizes building community and relationships as well as demonstrating my respect for students by providing a challenge that includes academic rigor and consistent student effort. I am no expert with respect to remote technology – but with your help I think we can get all these things done.

Communicating with Me

Please communicate with me using email: mcarrier@uoregon.edu, and not through Canvas messaging.

I will host “live” office hours through Zoom each week, and quite a few members of the large Bi212 teaching staff will be doing the same. We will also experiment with the other forms of communication offered through Canvas. I welcome meetings outside my regular office hours, too, upon request. Just email me to set something up.

Tests in a remote setting

Exams are timed and Canvas automatically varies the questions students receive. I will adjust times to support students with accommodations through the Accessible Education Center. If a technological glitch disrupts your exam, don't panic. Take a photo to document the error message you're receiving and then email me.

The University is implementing new tools for faculty to monitor academic integrity in Canvas assignments. I hope I never need to report a student for cheating – but I am obligated to do so if the situation arises.

Technological Requirements

This course requires that you use the Canvas website.

Log into canvas.uoregon.edu using your DuckID to access our class. If you have questions about accessing and using Canvas, visit [the Canvas support page](#). Canvas and Technology Support also is available by phone or live chat:

Monday–Sunday | 6 a.m.–12 a.m.
[541-346-4357](tel:541-346-4357) | livehelp.uoregon.edu

If you face Internet access challenges: computer labs are open for students at the Eugene campus. Some companies are offering free access during this challenging time. To learn more about options visit Information Services' [web page on going remote](#).

Grading

I will be mindful of the many impacts the unfolding events related to COVID-19 may be having on you. During this unusual time, if you are not able to do an assignment, please communicate with me and we will strive to create an alternative plan to complete required coursework.

All published evidence supports the hypothesis that regular practice and frequent testing provide the best results in terms of student retention and learning. It is for this reason that I provide so many low point value assignments.

Historically the grade a student receives in Bi212 has been considered a strong predictor of success in Bi214, upper division classes, and standardized tests including the GRE and MCAT. I do not know if grades in the class will correlate as well while the class is offered in remote format, but I am very confident that if you work hard and really master the skills and concepts we present, and learn to do those same set of things that generations of students have learned before you – that you will be well prepared for the next stages of your academic journey. I have taught a remote version of Bi212 twice before, and I have been very happy with the success of students in those terms.

The details of my grading system are published in the main pages of the syllabus. I may ADD grading options to what I have placed in the syllabus. If the grading system I have placed there in black and white ends up being the system that is to your greatest advantage, you can count on it getting you a grade with the standard 90% or better is some kind of A, 80% or better some kind of B conversion of course points to letter grade.

Discussion and Engagement Guidelines for Remote Participation

The following are the suggested instructions the university provides for remote participation in UO courses. I am particularly invested in item 4.

- 1. Participate and Contribute:** Students are expected to participate by sharing ideas and contributing to the collective learning environment. This entails preparing, following instructions, and engaging respectfully and thoughtfully with others. More specific participation guidelines and criteria for contributions will be provided for each specific activity.
- 2. Use Proper Netiquette:** Please use good “net etiquette”: identify yourself with your real name, write or speak in the first person, and use a subject line that clearly relates to your contribution. Good netiquette also means using humor or sarcasm carefully, remembering that non-verbal cues (such as facial expressions) are not always possible or clear in a remote context. In addition, your language should be free of profanity, appropriate for an academic context, and exhibit interest in and courtesy for others’ contributions. Certain breaches of netiquette can be considered disruptive behavior.
- 3. Interact Professionally:** Our learning environment provides an opportunity to practice being professional and rigorous in our contributions. As much as possible, use correct spelling, grammar, and style for academic and professional work. Use discussions and activities as opportunities to practice the kind and quality of work expected for assignments. Moreover, seize the chance to learn from others and develop your interpersonal skills, such as mindful listening and awareness of one’s own tendencies (e.g. Do I contribute too much? Too little?).
- 4. Expect and Respect Diversity:** All classes at the University of Oregon welcome and respect diverse experiences, perspectives, and approaches. What is not welcome are behaviors or contributions that undermine, demean, or marginalize others based on race, ethnicity, gender, sex, age, sexual orientation, religion, ability, or socioeconomic status. We will value differences and communicate disagreements with respect. We may establish more specific guidelines and protocols to ensure inclusion and equity for all members of our learning community.
- 5. Help Everyone Learn:** Our goal is to learn together by learning from one another. As we move forward learning during this challenging time, it is important that we work together and build on our strengths. Not everyone is savvy in remote learning, including your instructor, and this means we need to be patient with each other, identify ways we can assist others, and be open-minded to receiving help and advice from others. No one should hesitate to contact me to ask for assistance or offer suggestions that might help us learn better.

Specific guidelines for best practices using Zoom:

1. Please test your video and audio prior to joining a live class session. You can learn more about testing your audio and video by visiting the Zoom Help Center at <https://support.zoom.us/hc/en-us>
2. Try to be on time when the meeting starts. It can be distracting to have participants join late.
3. Be mindful that others can see you and your surroundings if your video is on. Try to find a quiet setting without lots of noise or busy activities in the background. Please minimize distractions like eating or multitasking and speak and use gestures like you would in person.
4. Use a microphone or speak closely to your computer microphone so that others can hear you. If you have video on, try to look at your camera, not the screen, when you are contributing.
5. Mute your audio when you are not actively contributing. When contributing, avoid making other noises such as typing or eating or having side conversations with others that might be present with you.
6. Use chat sparingly to pose questions or offer insights “on the side” while others are contributing. This can be distracting, so instructors should limit chat when appropriate by limiting access to chat with host.
7. If you prefer to use a static image instead of video, you can keep your video off.
8. For help and troubleshooting with Zoom, visit the Zoom Help Center at <https://support.zoom.us/hc/en-us>

Course Overview

The purpose of this class is to invite students to join the scientific community in our quest to use experimental data to increase our understanding of how life works.

This course is about plant and animal physiology and development. We study the constraints set by geometry, the environment, and natural laws that dictate what organisms must accomplish in order to survive and reproduce. We study the forces and machinery that allow movement across membranes, enzyme regulation and kinetics, differential gene expression, and mechanisms of cellular computation and perception. We generate models of systems that organisms use to create homeostasis, which is an internal environment in which their individual cells can participate optimally in the process of meeting the challenges of life on earth. We also study how cells manage to take on specific and unique roles in the organism, which is the study of developmental biology.

Students taking the course will learn how to carry out epistatic analyses of various biological pathways and to interpret and generate complex graphical representations of data. Students propose, design, and conduct experiments on the physiology of long-range transport in plants or animals. They analyze the data they generate and write a scientific paper describing their work. This course is part of the introductory biology sequence, and has as a prerequisite Bi211. This course is itself a prerequisite for Biology 214 (but not 213) and for the introductory human physiology sequence.

Course Prerequisites

The prerequisites for Bi 212 are C-, P, or better in Bi 211 and one term of Chemistry (111 or higher).

Bi211-214 Sequence Goals

There are three major goals for the Bi211-Bi214 sequence.

Concepts The diversity of organisms on earth is awe inspiring, but so too is the commonality of all life. We will focus the course on a reasonably small set of concepts that will help us understand how all organisms work.

To succeed in this course, students will need to demonstrate a working understanding of these major concepts, and be prepared to apply their understanding to novel situations as well as to demonstrate comprehension of these concepts in the context of examples we discuss in lecture.

Skills It is important for all citizens to be scientifically literate, whether or not they are in a science profession. Part of science literacy is the ability to find, evaluate, and communicate or act on scientific information and issues. We will practice these skills in this course. We take a quantitative approach to the study of organisms, and the skills practiced include making sense of scientific data, evaluating experimental design, understanding and generating written and graphic representation of scientific data

Science as a process: We think that it is important for all people, not just professional scientists, to understand how science works. To learn to be a better scientist you will read scientific papers and discuss not only the findings, but also how science is conducted. You will practice scientific methodology by learning to test hypotheses (even in lecture), doing controlled experiments, and evaluating observational studies. The focus of this term will be experimental design, and how we obtain evidence to test a hypothesis.

Bi212 Course Goal

Study the commonality of mechanisms used by plants and animals to meet the challenges of aquatic and terrestrial environments so we may derive or reveal the basic principles of physiology that apply to all organisms. Students will join the scientific community by participating in the principal activities of scientists.

Bi212 Course objectives

Students will:

...learn to use primary literature sources to obtain specific information that they can use to *generate models* of biological systems

...learn to *interpret* and *generate* complex graphical representations of data

...study several established models of the mechanisms used to maintain such aspects of organismal homeostasis as temperature regulation, metabolic rate regulation, blood flow regulation and plant gas exchange regulation to establish a pattern of what these processes have in common; to enable them to then *predict* how other aspects of homeostasis will be accomplished.

...learn to use single and double mutant phenotype data to *carry out epistatic analyses* and *generate models* of how physiological regulatory systems operate.

...learn and apply basic principles of enzyme kinetics to *predict* how the regulation of enzymes is used to maintain homeostasis in each of the covered physiological systems, and *identify* the types of regulation being used on the basis of experimental results.

...*Study* the regulation of metabolic processes in relation to all aspects of physiology to solidify students understanding of energy flow as a basic principle of life.

...Study the role of differential gene expression and developmental genetic pathways to *make or critique predictions* about how cells take on specific roles in multicellular organisms.

...Students investigate specific results of the experimental use of genetic constructs to alter or reveal gene expression patterns in plants and animals, and use this training to *make predictions* about the most likely outcome of experiments in which other constructs are used.

...learn to *generate hypotheses, carry out and modify experimental protocols, collect data, carry out statistical analyses, and generate papers* formatted and organized to be appropriate for a typical scientific journal.

...apply concepts of equilibrium potential and driving force to a variety of physiological systems

Bi212 Course Format

Class time Zoom sessions (Monday, Wednesday and Friday, 9:30 am to 10:30 am)

Participation in our class time zoom sessions are a key to preparing for quizzes and exams and exams and quizzes are given during class time. The final exam, is also given during a scheduled time. This term the final will be given on **FRIDAY of finals week at 10:15**, and we will proctor it through Zoom. Our class time on days not dedicated to tests will include instructor and teaching guided problem-solving work in smaller groups, which we accomplish using “breakout rooms”. During these sessions you will hear about breakthroughs in research that occur during the term, and get very relevant practice making sense of the figures, diagrams and graphs scientists use to share information with the scientific community.

Distance lectures (asynchronous, but due MWF 11:59pm)

Distance lectures are formatted as Canvas quizzes, in which I have embedded videos, diagrams, and text that enables you to answer the quiz questions in which they are embedded. The points you earn completing these distance lectures makes up a significant chunk of your final grade. You are welcome to work on these in groups, and to get office or tutor hour help completing them. Using outside resources such as Chegg to complete these assignments, however, constitutes academic dishonesty. I have changed questions within these assignments in such a way that using inappropriate sources will reveal cheating. It isn't worth it. Get my help instead.

Lab/Discussion activities (students register for particular times)

The lab/discussion is a smaller group that meets once a week at times that you register for to register for the course. The focus of labs will be to investigate the process of hypothesis driven science. Labs will be devoted to designing, conducting, analyzing, and presenting experiments in physiology. See the section on Student Investigation Project for a more detailed explanation. Each laboratory exercise is introduced by a **Pre-lab**. The pre-lab assignment is **due on Tuesday** just before midnight. You are asked to read the lab before **attending the lab session for which you registered**. The **lab assignments** you will work on with your section are **due Thursdays** just before midnight. The Pre-lab will introduce you to the topic to be covered in lab and help focus your thinking so that you will get more out of the laboratory. It's too bad we can't offer you physical practice working with lab equipment during the pandemic, but we'll get you up to speed on how they are used and how they work, so that when you encounter them in person you will have a good foundation for doing lab work.

The second half of the term features a **research proposal project** you will complete over the course of five weeks, turning in draft and then a final version **due Tuesday of week Nine**. You will work in groups to discover what is and is not known about the influence of some variable you choose on the plant transport systems. This is our topic for several reasons. You will learn about plant transport before the project begins. The regulation of plant transport is well studied, accessible to experimental manipulation, can be carried out without ethical ambiguities. Because of climate change, our struggles feeding a growing world population, and remarkable progress in the tools used to study and manipulate plant transport systems, this topic is a very active focus of the scientific community.

Homework Assignments (due Wednesdays at midnight of weeks 3,5,7 and 9)

There will be four homework assignments during the quarter. The homework will help you to learn the material from your readings, lectures and labs that we think is important and thus may be included on the exams. Homework assignments will have a Canvas based, computerized version that will be the graded form of the assignments. The PDF version is what you should use to do the homework yourself, because if you do you will have generated an excellent quiz and exam study tool. I will hold HW sessions to help you understand these problems, and using this resource will almost certainly be worth your while. Solutions to the homework will be posted on the web just after the due-date, so **late homework will not be accepted.**

You must do your own work on homework. Copied homework will be treated as academic dishonesty. It's not smart to cheat on homework anyway, the homework is there because if you can figure out these answers you'll do well on tests.

Office and Tutor hours

Instructor Office Hours:

The number of office hours to be offered for this class is very large. The course instructor offers around **12** pre-scheduled office hours/week in addition to HW problem solving sessions during the in-person teaching terms. I am not sure how to best deploy my time for maximum availability/access but I intend to spend lots of hours with you if you want to use them. **PLEASE USE THEM!** If you need to meet privately, let's arrange that by email.

GE office hours:

The graduate students helping to teach this course, who are in fact teaching the lab portion of the course, will hold an office hour each week. The schedule of these times will appear as soon as is possible on the front page of the course website. Most of the graduate students have not taken this course before, and so they will be learning some of the content along with you. They are all excellent students and young professional scientists however, and we encourage you to take advantage of the opportunity to spend time with them. They have been very successful navigating college, and they are carrying out cutting edge research even as they mentor you through your lab assignments.

Tutor Hours:

You will see that we have a very large number of undergraduate teachers on our team. They will participate at scheduled times in the perpetual 24/7 Bi212 Zoom room. The tutors on our team are among the most successful students on campus, accomplishing amazing things in and out of the classroom. They have all mastered the content and skillsets of this course well enough to get great grades in the class and convince me they can help you do so as well.

Discord Workspace: <https://discord.gg/GqVnqVFNY>

We have created a Discord workspace to encourage students to make productive use of social media with respect to group work. Teaching staff will monitor this and help when help is requested, within guidelines we'll set up in class.

Grades

Assignment weightings

Distance lecture assignments	35%
Lab assignments	15%
Homework	10%
Self-tests	0%
Lecture hour Quizzes	10%
Lecture hour Midterms	20%
Final exam	15%

Calculating your grade

Ideally canvas would keep a running tally of your grade, but it cannot do so for Bi212 because many of our assignments offer the possibility of earning more than 100% of the points for that assignment. I provide a Microsoft excel template for you to download, into which you can enter your own grades and keep track of your own progress. But the class is designed to allow you to benefit from progress – so rather than calculating your grade with any frequency – I recommend that you spend that time on the next assignment instead.

Graded and non-graded assignments

Exams and quizzes: There will be three exams (two midterms and a comprehensive final) and two quizzes. The exams will cover material from all aspects of the course including lectures, labs and readings. Exams will probe a deep understanding of the concepts and principles discussed, and an ability to apply the concepts to novel situations. **EXAMS CANNOT BE MADE UP. EVERYONE IS REQUIRED TO TAKE THE FINAL EXAM. BE CAREFUL WHEN MAKING TRAVEL PLANS AS THE FINAL IS ON FRIDAY JUNE 11" AND THERE WILL BE NO EARLY EXAMS AND NO MAKE-UP EXAMS.**

All exams will be deployed using Canvas quiz and assignment software. The university is acquiring new tools to ensure academic integrity in remote testing applications. Exams will be proctored in zoom sessions during class times.

Distance lectures: I will present lectures in the form of Canvas assignments in which questions contain video and written presentation of course content. We will use Canvas to pose questions that can be graded by computer and provide you with pretty much instant grading and feedback as to your understanding of the material as it is presented. We will begin the term using these assignments as the mechanism of content delivery that would have been provided in person in lecture if we were on campus together. I will provide these as assignments you can complete asynchronously – which means whenever you like before the deadline. ***THESE ARE PART OF YOUR COURSE GRADE***

“Class time” I will use the 9:30-10:30 lecture slot to create video remote conferences with the class using Zoom software. The purpose of these meetings will be to generate an interactive environment in which we can discuss the class. They will not replace the other assignments, and although I do intend to work problems on a virtual chalkboard with you, I will not introduce novel content during these events outside of novel examples of the content presented in distance lectures.

Homework Assignments There will be four homework assignments during the quarter. The homework will help you to learn the material from your readings, lectures and labs that we think is important and thus may be included on the exams. Homework assignments will have a Canvas based, computerized version that will be the graded form of the assignments. The PDF version is what you should use to do the homework yourself, because if you do you will have generated an excellent quiz and exam study tool. I will hold HW sessions to help you understand these problems, and using this resource will almost certainly be worth your while.

Solutions to the homework will be posted on the web just after the due-date, so **late homework will not be accepted.**

You must do your own work on homework. Copied homework will be treated as academic dishonesty. It's not smart to cheat on homework anyway, the homework is there because if you can figure out these answers you'll do well on tests. ***THESE ARE PART OF YOUR GRADE***

Laboratory activities: A big fraction of the lab time will be dedicated to reading and writing research papers, but we will also be presenting the theory and practical application of laboratory tools and equipment. **Attendance at lab is mandatory. Missing multiple labs without an acceptable excuse will result in a failing grade for the course. . *THESE ARE PART OF YOUR GRADE***

Student Investigation Project: In an on-campus term you would propose and carry out an experiment of your own design and write up your results in the form of a research paper. In a remote term you will work in team to create a research proposal that you will write up as though applying for funding for carrying out the project you design. Although you will not be given the opportunity to physically carry out your proposed experiments – your proposal will not limit you to equipment available in an introductory level biology class. The first iterations of this project elicited remarkable student work, and I am convinced it is a process at least as valuable as the physical practice you would get in an on-campus term. You will not experience the frustrations of spending most of your time trouble-shooting experimental manipulations – which is a key to understanding the process of science – but you will have the freedom to craft a meaningful product and the potential learning outcomes are limited only by the effort and focus you have available to bring to the task. . ***THESE ARE PART OF YOUR GRADE***

Post-lecture “Self-Tests” on Canvas

Questions relevant to material covered in lecture will be posted at the end of each class. Canvas will grade them, provide the correct answers, and record your grades. These tests will be short, and will be available from the end of lecture to the start of the next lecture – so your time to complete them is limited. I call these “self-tests” as they are work that you have the option to complete for the purpose of testing yourself, but they do not get included in your course grade. ***THESE ARE NOT PART OF YOUR COURSE GRADE***

Readings

Any recent biology textbook would be an acceptable source of background information for Bi212, but I do not assign a textbook. I do provide a list of pages relevant to our class topics for the textbook often used in Bi211 and Bi213. In the most recent term of Bi212 a free online text was used. It doesn't cover Bi212 course content at the depth required for our class, but it provides an excellent background for some topics.

Textbook *Biological Science* by Freeman, Any edition.

The text can be used as a general reference throughout the four quarters of General Biology. Pertinent chapters are indicated in the readings document, specific page assignments will be given as we proceed. The readings include background material useful to prepare you for lecture and for studying for exams. We don't expect you to remember all the details in this material. A good strategy is to read the material twice: the first time skim over it, concentrating on the major concepts; the second time read it more carefully, concentrating on the parts relevant to the homework, lectures, or labs. You may expect that exams will cover only the material covered in lecture, but the text will provide a context and an alternative method of explaining that material.

Journal articles:

We will make available a set of assigned and a set of optional readings on our website. Our textbook provides plenty of information and covers a wider range of topics than we cover in all four semesters of this biology sequence. Textbooks in general fail to provide an idea of the evidence supporting the models we teach for how biological systems work, and the processes that lead to our understanding of how things work. They tend to simplify too much. Our assigned articles are designed to provide examples of the science methodology that leads to an understanding of the field, and to offer up to the minute coverage of topics that may not make it into textbooks for years to come.

Instructor Notes:

I create notes for every distance lecture that become available after that lecture assignment is due. These explain the reasoning behind answers to many of the questions in the assignments, but also a thorough coverage of the content provided in that lecture. These notes and the assigned papers are the reading material most appropriate for you to focus upon when you student for the class

Supplementary content videos:

We have made screencast videos of the important content and themes of the class that you might use as a video textbook. During on campus terms most dedicated student watch these videos before coming to class, allowing us to focus on the application of that content during class.

Student, instructor, and staff conduct

This syllabus is, in effect, an agreement about how all of us will carry out our duties and conduct ourselves this quarter. You should read this carefully and talk to us about it as soon as possible if you are uneasy with parts of this syllabus. We will work hard to make this course valuable to your learning. We welcome suggestions from you at any time about things you think could be done to improve the course. In return, we ask that you arrive at lab and lecture conferences on time and stay until class is over without making unnecessary noise that could distract your classmates.

Academic Integrity

Students will be expected to adhere to the University's guidelines on academic integrity <https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code>.

Academic misconduct is a serious concern that threatens the value of the degree you are working hard to earn. Your education is expensive, you should behave in ways that do not reduce the value of your degree for you and for your peers. Dishonesty has become rampant in political discourse, and as a nation we have failed to counter dishonesty with consequences. I believe honesty is our responsibility, yours and mine. You owe it to me and to your peers and to yourself to follow the conduct code, and we owe it to all of us to discover and report misconduct. I have a zero-tolerance policy for academic dishonesty, and I will suggest that students who are discovered to have engaged in cheating will, in accordance with University regulations and procedures, receive a failing grade for the course. Having the record of academic dishonesty on your record for even a single class is a penalty that will outweigh any gains you think you have accrued in all of your classes.

Finally, you do not have permission to post any course related material on private or public websites (i.e. Chegg, GroupMe, CourseHero, Discord etc.). Doing so violates both University conduct policy and copyright law. I will vigorously investigate the source and use all Bi212 material found on such websites.

Academic integrity during exams

The University Student Conduct Code defines academic misconduct, which includes unauthorized help on assignments and examinations and the use of sources without acknowledgment. Academic misconduct is prohibited at UO. I will report misconduct to the Office of Student Conduct and Community Standards—consequences can include failure of this course. I will ask you to certify that your exams/papers are your own work. Exams are administered in Canvas and timed, some

will be proctored on Zoom. I have designed them with the expectation that you will have access to the course materials you generate over the course of the term when you take them—so creating a physical set of notes for use during tests is encouraged. You may not use internet sources to help you during tests. You may not get the help of others during tests.

I encourage group work on the non-test assignments. But this does not include using websites outside of those provided through Canvas.

- **University definitions of Academic Misconduct**

- a. Assisting in the commission of academic misconduct: Any intentional action that helps, or is intended to help, another engage in academic misconduct.
- b. Cheating: Unauthorized collaboration, accessing, or using of unauthorized materials, information, tools, or study aids.
- c. Fabrication: Making up data or results and recording, reporting, or using them as authentic.
- d. Multiple submissions of work: Using or submitting the same or substantially the same academic work for credit more than once, unless specifically authorized by the instructor of record for the course in which it's being submitted for credit. If authorized, appropriate disclosure and citation is required.
- e. Plagiarism: Presenting another's material as one's own, including using another's words, results, processes or ideas, in whole or in part, without giving appropriate credit.
- f. Unauthorized recording and/or use: Recording and/or dissemination of instructional content, or other intellectual property, without the express written permission of the instructor(s), intellectual property owner or the Accessible Education Center.

Class Courtesy

Please arrive “to 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 when given approval by the instructor. 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.

Personal Emergencies

We all have crises now and then. If you are having a problem that interferes with your ability to do the work in this class, please tell us about it as soon as you can. We are willing to give grades of incomplete or to make some kinds of special arrangements when the need is real **and** when you have done your best to deal with the situation and let us know about it in a timely manner.

Diversity 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.

Discrimination and Harassment

Prohibited 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

The instructor of this class is 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](#).

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 360 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Academic Resources for Students The Tutoring and Academic Engagement Center (Knight Library 4th floor; <https://apps.ideal-logic.com/uotutoring>) provides Individual tutoring (private-hire) available through the

Learning Specialists can help you with strategies for success in BI 212 and the sciences in general. You can work on time management, note-taking, effective study skills, etc. To make an appointment, call [541-346-3226](tel:541-346-3226) or schedule online at <https://engage.uoregon.edu/services/>

Class Encore study group for BI 212

Do you enjoy studying with other people? Would you like to practice course concepts with additional help? Are you interested in learning strategies for academic success? If so, check out Class Encore, a Tutoring and Academic Engagement Center program that sets up small, structured study groups for challenging classes. The groups meet outside of class once a week for 50 minutes, weeks 2-10. Students gather to practice course concepts and study strategies with the assistance of a trained peer leader. Registration for Class Encore is FREE and open to ALL students enrolled in the class; each group is limited to the first 10-12 students who sign up. To register for a BI 212 study group, visit <https://classencore.uoregon.edu/>.

Accessible Education Center 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. 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, email at 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

Mental Health and Wellness

"Life at college can be very complicated. Students often feel overwhelmed or stressed, experience anxiety or depression, struggle with relationships, or just need help navigating challenges in their life. If you're facing such challenges, you don't need to handle them on your own--there's help and support on campus.

As your instructor if I believe you may need additional support, I will express my concerns, the reasons for them, and refer you to resources that might be helpful. It is not my intention to know the details of what might be bothering you, but simply to let you know I care and that help is available. Getting help is a courageous thing to do—for yourself and those you care about.

University Health Services help students cope with difficult emotions and life stressors. If you need general resources on coping with stress or want to talk with another student who has been in the same place as you, visit the Duck Nest (located in the EMU on the ground floor) and get help from one of the specially trained Peer Wellness Advocates. Find out more at health.uoregon.edu/ducknest.

University Counseling Services (UCS) has a team of dedicated staff members to support you with your concerns, many of whom can provide identity-based support. All clinical services are free and confidential. Find out more at counseling.uoregon.edu or by calling 541-346-3227 (anytime UCS is closed, the After-Hours Support and Crisis Line is available by calling this same number)."