

# BILD 1: The Cell

UC San Diego – Winter 2021

## Welcome to BILD 1!

BILD 1 is an introduction to the **structure and function of cells**, both in organisms like bacteria and in organisms like us. There are no prerequisites, although basic knowledge of chemistry will be helpful.

This section of BILD 1 will be **fully remote**. We know that many students find being online challenging, but **we will do our best to support you**. Research has shown that in general in online courses, more students disengage and leave the course, and that the students who remain on average do not perform as well. However, research also shows that **courses where students feel connected to the course, materials, and instructors** suffer less from these effects.<sup>1</sup> In addition, we know from research on in-person classes that **courses with lots of low-stakes opportunities to explore ideas and get feedback** are generally better for student learning.

Therefore, in addition to **pre-recorded, asynchronous lectures**, we will provide many opportunities for you to think about biology in low-stakes ways. These include **pre-lecture journal assignments**, and **post-lecture discussion section problem sets** and **writing assignments**. There will also be **post-lecture weekly quizzes** that you can take up to 3 times to give you feedback on whether you understood the ideas in the lectures.

We will also give you many opportunities to **connect with the teaching team and your fellow students**. These include **live office hours** by both the professor and the IAs and **live discussion sections**. If you cannot make those, there will be a **discussion board on Piazza** ([piazza.com/ucsd/winter2021/bild1](https://piazza.com/ucsd/winter2021/bild1)) where you can ask questions about the material, technology, or anything else relevant to the course of your fellow students, the IAs, and the professor. Finally, the post-lecture comprehension quizzes **will also ask for your feedback for the teaching team**. All of these (except the post-lecture weekly quizzes) will be **optional but highly encouraged**.

As the quarter progresses, we will use your feedback to adjust the course. Please bear with us as we face this challenge together!

<sup>1</sup> Protopsaltis and Baum. 2019. Does online education live up to its promise? A look at the evidence and implications for federal policy. <https://mason.gmu.edu/~sprotops/OnlineEd.pdf>

<sup>2</sup> Eddy and Hogan. 2017. Getting Under the Hood: How and for Whom Does Increasing Course Structure Work? *CBE-Life Sciences Education*. 13(3): 361. <https://www.lifescied.org/doi/full/10.1187/cbe.14-03-0050>

## How a typical week may look for you: connecting with biology every day

Day	Watch	Do
Monday	Monday's lecture	Go to discussion section and practice with colleagues
Tuesday		Do pre-lecture Biologist journal for Wednesday's lecture
Wednesday	Wednesday's lecture	Attend office hours and ask a question via chat Revise and submit writing assignment
Thursday		Do pre-lecture Biologist journal for Friday's lecture
Friday	Friday's lecture	Work on problem set questions
Weekend		Complete weekly quiz. Get one question wrong, so immediately re-take it for full credit.

**The Basics: Where to Find Lectures, Office Hours, and the Discussion Board**

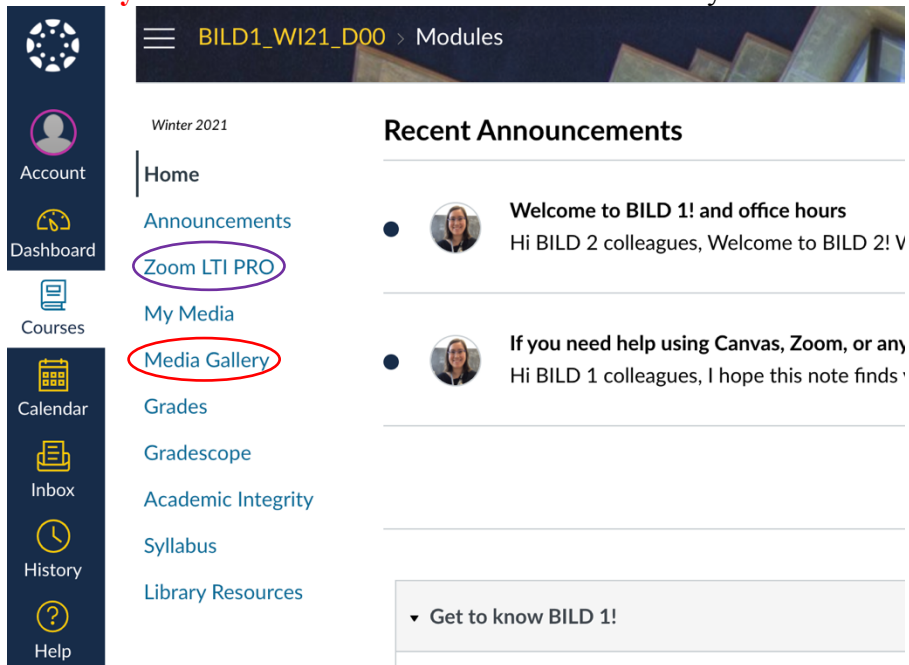
**Course website:** UCSD Canvas site for BILD 1, Winter 2021 (go to <https://canvas.ucsd.edu/>)

**Where are the lectures?** Go to the “**Media Gallery**” link on the side. Lectures will be ordered by Week and Day.

**Where are office hours?** Go to the “**Zoom LTI Pro**” link on the side and click on the tab “**Upcoming Meetings**.” On there, you can see the office hours for Prof. Owens and for all the IAs.

**Where are the discussion sections?** Go to the “**Zoom LTI Pro**” link on the side and click on the tab “**Upcoming Meetings**.” On there, you can see the discussion section times for all the IAs. **You may attend any discussion section. Sections start Week 1.**

**Where is the discussion board?** This term we will be using Piazza for class discussion. Rather than emailing questions to the teaching team, we encourage you to post your questions on Piazza. Our class signup link is here: [piazza.com/ucsd/winter2021/bild1](https://piazza.com/ucsd/winter2021/bild1)



**The Basics: When to Find the BILD 1 Teaching Team**

**Section times:**

Section	Day and Time	IA	IA Email
D01	M 9-9:50am	Justin Park	ipark@ucsd.edu
D02	M 1-1:50pm	Diana Contreras	dccontre@ucsd.edu
D03	M 2-2:50pm	Marc Jabara	mjabara@ucsd.edu
D04	Tu 3-3:50pm	Aries Chavira	archavir@ucsd.edu
D05	Tu 4-4:50pm	Casey Cheng	c2cheng@ucsd.edu
D06	Tu 2-2:50pm	Aries Chavira	archavir@ucsd.edu
E01	W 10-10:50am	Tom Quach	thquach@ucsd.edu
E02	W 3-3:50pm	Elizabeth Estevez	eestevez@ucsd.edu
E03	Th 8-8:50am	Luiza Gaudio	lgaudio@ucsd.edu
E04	Th 9-9:50am	Nancy Ji	qlji@ucsd.edu
E05	Th 2-2:50pm	Alex de la Cruz	aldelacr@ucsd.edu
E06	W 4-4:50pm	Alex de la Cruz	aldelacr@ucsd.edu

**Office hours and contact information:** You are encouraged to go to anyone's office hours. As you can see, we have office hours every day at a variety of times! If these times do not work for you, you may also contact us with your availability for a different time.

Name	Role	Email	Office hours
<b>Melinda T. Owens</b>	Assistant Teaching Professor Div. of Biological Sciences	<a href="mailto:mtowens@ucsd.edu">mtowens@ucsd.edu</a> Text: 415-290-8853	MW 10am-12n, F 9-10am
<b>Tom Quach</b>	Junior, Human Biology	thquach@ucsd.edu	Monday 4-5pm
<b>Nancy Ji</b>	Junior, Human Biology	qlji@ucsd.edu	Monday 6-7pm
<b>Aries Chavira</b>	Master's student, Biology	archavir@ucsd.edu	Tuesday 9-10am
<b>Luiza Gaudio</b>	Junior, General Biology	lgaudio@ucsd.edu	Tuesday 1-2pm
<b>Diana Contreras</b>	Junior, Molecular and Cell Biology	dccontre@ucsd.edu	Wednesday 9-10am
<b>Elizabeth Estevez</b>	Sophomore, Human Biology	eestevez@ucsd.edu	Wednesday 8-9pm
<b>Alex de la Cruz</b>	Master's student, Biology Education	aldelacr@ucsd.edu	Thursday 3-4 pm
<b>Casey Cheng</b>	Junior, Molecular and Cell Biology	c2cheng@ucsd.edu	Thursdays 4-5pm
<b>Marc Jabara</b>	Senior, Human Biology	mjabara@ucsd.edu	Friday 10-11am
<b>Justin Park</b>	Junior, Neurobiology	ipark@ucsd.edu	Friday 8-9pm

### Required and Optional Materials

**Required materials:** Canvas, Zoom (To get your free PRO account, go to: <https://ucsd.zoom.us/>)

**Optional materials:** *Campbell Biology* (8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, or 11<sup>th</sup> editions).

Lecture slides and all required course readings will be posted on the class website. Many students find the textbook *Campbell Biology* or the associated online resource *Mastering Biology* useful, but they are not mandatory.

### What will we learn in BILD 1?

BILD 1 is an introduction to the **structure and function of cells**, both in organisms like bacteria and in organisms like us. We will study the **biological molecules** present in cells, how cells obtain **energy**, and how these organisms **pass information on to the next generation**. In other words, we will deepen our understanding of the essential functions of living things by exploring the physical structures and biological principles that underlie the fundamental unit of all living organisms, the cell.

### Overall Philosophy

We believe that **learning about biology is inherently empowering**. Your biology coursework should not only be a means to an end like a certain degree or profession. The knowledge you learn should also allow you to **understand situations that might arise in your life** and aid you in **helping the people in your family and community thrive**. In practice, what that means is that we will teach you the basic content knowledge about the physiology of people and other organisms, but then will we ask you to **go beyond memorization to deeply understand** the material and **apply knowledge to new examples**. For example, when we talk about cancer, we might use skin cancer as an example in a problem set but ask you to apply the concepts to liver cancer on an exam. That way, if someone in your life develops breast cancer, you will ideally already have had practice integrating the fundamental concepts you learned in BILD 1 with information about a particular cancer, which will hopefully allow you to better help them understand their disease and treatment.

We also believe that **everyone can learn biology and be a biology person** and that students are often the best resources in **helping each other grow**. Therefore, we have built in many places where you will engage with your fellow students **as a community of biologists**. Some of you might find such engagement difficult at first. However, it becomes easier with practice. Also, if you go on to have a career that involves biology in some way, for example as a researcher, healthcare professional, or educator, you will spend a great deal of your time communicating about that biology. Through interacting with each other verbally and in writing, you can practice the communication and leadership skills you will need in such careers. You will get further opportunities to practice articulating your thoughts about biology in writing through numerous writing assignments, but low-stakes and high-stakes.

## High-level Learning Goals

We anticipate that you will learn many different things in BILD 1! Because of the way we have designed the course, we anticipate that what you will be able to do by the end of the quarter includes, but is not limited to, the following:

- **Demonstrate an understanding of the structure and function of cells**, especially cells in organisms like humans, and how **information is transmitted from generation to generation**.
- **Predict how a change** in a molecule, structure, or cell (like through a disease or experimental manipulation) **will affect its function** and the function of the cell as a whole.
- **Develop critical thinking skills** to be able to think like a biologist and **solve biologically-relevant problems**.
- **Develop scientific writing skills** to be able to explain your knowledge clearly in a paragraph form to peers.
- **Increase your understanding of your own learning (metacognition)**, including recognizing what topics are easy or difficult for you to learn, learning what study strategies work best for you, and seeking help from instructors and colleagues at appropriate times.

All questions on exams, as well as nearly all questions on homework and in-class and in-section activities, will be tied to at least one of these overall learning outcomes.

At the beginning of each unit, we will also provide you with specific biology-related learning outcomes to guide your learning of that material. The problems on the exams will be tied to those specific learning outcomes.

## Grading

The activities, requirements, and assignments that comprise this course are designed to **promote your learning and the behaviors that tend to lead to learning**. In addition, these assignments (particularly the Biologist Journal assignments and weekly quizzes) give us valuable information that allows us to adjust the course to better meet your educational needs.

## How Your Letter Grade will be Assigned

Grade assignments will be based on the percentage of total points earned. We do not decide your grade, but rather **you as a student do the work to earn your grade**.

%	Grade	%	Grade	%	Grade	%	Grade
>97	A+	87-89	B+	77-79	C+	60-69	D
93-97	A	83-86	B	73-76	C	0-59	F
90-92	A-	80-82	B-	70-72	C-		

## How Your Grade will be Calculated

Course Component	Total Points	~% of Grade
<b>Lecture Participation</b>	<b>190</b>	<b>18%</b>
More About You survey	10	
Pre-lecture Biologist Journals (14 @ 5 points each)	70	
Weekly Quizzes (9 @ 10 points each)	90	
Final Reflection	20	
<b>Section Participation</b>	<b>90</b>	<b>8%</b>
Section participation OR alternate activity (9 @ 10 points)	90	
<b>Writing Assignments</b>	<b>120</b>	<b>11%</b>
Highest scoring writing assignment	40	
Next highest scoring writing assignment	40	
Third highest scoring writing assignment	40	
<b>Exams (All exams, including the final, are equivalent)</b>	<b>640</b>	<b>60%</b>
Highest scoring exam	160	
Next highest scoring exam	160	
Third highest scoring exam	160	
Fourth highest scoring exam	160	
<b>Professionalism</b>	<b>20</b>	<b>2%</b>
<b>TOTAL</b>	<b>1060</b>	<b>100%</b>

Grades will be posted regularly on Canvas.

### A note on re-grading

We are always happy to communicate with you **to discuss your learning**. If you believe that a grading error has been made, please contact your IA with an explanation of the error. **If you think your work deserves more points**, please include in your explanation a concise description of how your answer compares to the rubric and why you think it should have earned more points.

### Explanation of Course Components

With all these assignments, the course may seem like a lot of work, but we believe that each of the course components is important for **supporting your learning** and structuring your studying. If it becomes apparent that this is not the case for the majority of students, we reserve the right to alter the course structure to better support you and your learning.

### Lectures

To give you flexibility in your schedule, lectures will be **asynchronous**. We will record and post lectures early in the week that they are supposed to be watched.

During lectures, I will pose questions to you in the form of **video quizzes**. **Video quizzes are not graded**; they are purely to help you engage with the lecture material. Trying to answer the question before you hear the answer will help you check your own knowledge and better remember the material. That is true even if- actually *especially* if- you realize you do not know the answer.

### Pre-lecture Biologist Journals

Before every Wednesday or Friday lecture, there will be an assignment called a **Biologist Journal** posted on Canvas. The main purpose of these assignments is to **prepare you for class** by allow you to **reflect on what you already know**, do some **pre-reading**, and **connect the material to the real world**. We on the teaching team also read them to better understand what our students know and think about the topic beforehand to adjust our teaching.

Each Biologist Journal is different, but each one involves **writing to a specific prompt**. They are **graded solely on being turned in on time and for meeting the word count** by writing on topic, **not for correctness** or writing style. That is because Journals are about your *pre-class ideas*, so we do not penalize you if the words are awkward or if the ideas are not correct. Reading more about the topic online is a great idea, but ultimately, the Journals are about **exploring your own ideas and thoughts about the topic**. So, we expect you to **use your own words when writing these Journals**. (Please see the section on Academic Integrity for more about that.)

Biologist Journal prompts will be posted on Canvas at least several days before they are due. They will be due most Tuesday and Thursday nights, except if the following day is an exam date. **They will be due at 11:50pm the night before class.**

You can submit 85% of Biologist Journals (14/16) and still receive full credit, as the lowest two Journal scores are dropped.

### Post-lecture Weekly Quizzes

At the beginning of the next week, there will be a **post-lecture weekly quiz posted on Canvas** that covers the material from that week to help you check your understanding. It will be multiple-choice. Some of the questions on the quiz will be fairly basic to make sure that you understood the basic ideas from the lecture. Other will be exam-level questions that test application of fundamental knowledge. Quizzes will be graded on correctness, but we will allow you **3 attempts** to get full credit. After each attempt, we will give feedback on incorrect answers.

In addition, we will ask one or two optional ungraded open-ended questions that allow you to give feedback to us about your experiences in the course.

Quizzes will be due every Sunday night, including the night before Finals begin, **no later than 11:50pm**. Completion of at least 85% of quizzes (9/10) will give you full credit, as the lowest quiz score will be dropped.

### Writing assignments

Writing about biology not only helps you develop professional communication skills; it also has been shown to help you learn the material. Therefore, we will have **four short writing assignments** (roughly 4-6 sentences in length) that will be similar to free response questions on the exams that focus on concepts that have been tricky for students in the past.

Peer review is an important part of the process of scientific writing, and both giving and receiving peer feedback can help you learn. Therefore, after you turn in your own draft, which will be assigned as part of certain Biologist Journals, you will give anonymous peer feedback on other student's drafts in section. Finally, you will revise your own draft according to what you have learned from the class, the process of peer review, and your peer feedback.

The final writing assignments will be graded for correctness. You will turn them in using the website Gradescope. Final writing assignments will be due **every other Wednesday at 11:50pm** starting Week 4. Your lowest Writing Assignment score (1 of 4) will be dropped.

### Final Reflection

A final reflection on your experiences in this course is due at the end of the quarter on the **Sunday night after finals week at 11:50pm**. The prompt for this reflection will be: "What did you learn in BILD 1 that will continue to influence you for many years to come? How did you learn these things?"

### Discussion Section

Weekly discussion sections are online. They are designed to **engage you in applying your knowledge and** exercising your skills in **collaborative problem solving**. Most weeks, we will have a **problem set** with questions that are at the level of exam questions (and are often from previous years' exams). Problem sets will be posted several days before section. **Everyone should try to complete the problem set** before section, for your own learning. In addition, some weeks, we will be conducting peer reviews of each other's writing assignments (for more information, see the section "Writing Assignments" above).

**To promote collaboration and community, we highly encourage everyone to attend section on Zoom each week.** However, we acknowledge that not everyone might be able to attend section in a given week. Therefore, each week, there are two options for getting section participation credit:

- **Attend and participate in section:** You may attend any section. You are encouraged to show your name and your video, if possible, to facilitate collaboration and taking attendance. In section, you will work with others in breakout rooms and shared Google Docs to collaboratively explain and understand the problem set. Because section is about engagement and collaboration, participation credit will only be rewarded if you participate verbally or through writing with your breakout room group.
- **Complete an alternate written assignment:** If you cannot attend any section, you can request and complete an alternate written assignment that will also take about an hour. Generally, you will not only have to complete the problem set, you will also have to compare your original responses against the answer key and reflect on your learning process. We reserve the right to grade the alternate written assignment for correctness.

Each week, you can decide whether to attend section on Zoom or to complete the alternate written assignment, depending on your schedule that week. If you choose to do the alternate written assignment, it will be due the **Friday night of that week at 11:50pm**. Getting section credit, either through synchronous participation or doing the alternate assignment, at least 85% of the weeks (9/10) will award you full section participation credit, as the lowest score is dropped.

## Exams

To facilitate developing useful knowledge and skills for the long term, tests in this course will focus on **applying knowledge to assess and solve novel problems**. Questions will be multiple choice and short answer. Any material covered in or closely related to each lesson's learning objectives may be tested.

**Exams will be open-book, open-notes, and open-Internet.** That means that the answers to most exam questions will not be found by Googling. Also, you still should study! Most students find that it works best to use their time during the exam to carefully read the questions and use their own understanding to craft responses, with referring to notes or Google only for confirming details.

There will be 5 exams in this course, 4 during the term and 1 during Finals week. The exam during Finals week will be in the same format and treated equivalently as all the other exams. (Because some people are enrolled in the D00 section and some people in the E00 section, there will be two dates on which you can take Exam 5.) Your lowest exam grade of the 5 exams will be dropped. If you miss one of the exams, that will be the exam dropped.

**All exams are cumulative** (except the first exam) to promote long-term retention of knowledge. If you want to remember this material years from now in your career or life, you certainly want to remember it until the end of the term.

Each exam is 1.5hr long. You will be given a window of time from 9am-5pm to begin the exam. The dates for the exams are given on the Schedule in this syllabus. We understand that given the nature of this quarter, you might not be able to take the exam during that window. **If you need to have alternate timing, please let us know as soon as possible** so we can make alternate arrangements.

## Professionalism

This portion of the course grade is intended to motivate you to **consider the impact of your actions on your own learning and the learning of others** in the course. Unprofessional interactions consume time yet have no meaningful benefits to you, your fellow students, or the teaching team. If you act unprofessionally in class or at work, your colleagues, instructors, and supervisors may discount you and not invite you for new opportunities that you may or may not be aware of. Professionalism can be demonstrated through individual (described here) and community efforts (described below). The individual component is to account for you personally demonstrating maturity and professionalism.

**By default, we assume everyone is professional**, so this component is automatically awarded to you at the beginning of the quarter. During the quarter, based on observations by the teaching team, including but not limited to one-on-one interactions, electronic communication, and follow-up conversations on grades, **your professionalism credit may be deducted** in steps of 5pts.

Examples of professional interactions with meaningful benefits:

- Working collaboratively to improve in building knowledge and skills
- Asking questions about course policies or course material to clarify it and facilitate learning
- Clarifying how a response was incomplete or incorrect, after viewing the answer key, in order to learn how to correct one's own ideas
- Reporting errors or issues in class, on assignments, or on other course material
- Respectfully giving feedback about the course



- Treating everyone in the class community, including the instructional team and other students, with respect

Examples of unprofessional interactions that have no meaningful benefits and thus should be avoided:

- Contributing inequitably to team work in class or in discussion section
- Ignoring directions or requests from the instructional team
- Asking for course credit when such credit would conflict with stated course policies (such as the policy on late assignments), when it would be applied inequitably (such as just for you), or when the instructor has explained that the answer did not earn such credit
- Harassing or bullying the instructional team or other students
- Being disruptive to fellow students online, in discussion section, or during exams

### Extra Credit Opportunities

You will have several opportunities for extra credit. Extra credit questions will be offered on each exam to make up for exam points missed. In addition, there are two other opportunities for extra credit:

- 10 points for **meeting with Prof. Owens or an IA during office hours** or another meeting. If the office hours times do not work for you, email us and let us know what times work for you!
- 5 points each for 2 opportunities to **participate in a research study**. One of these opportunities will be available in the first week of the term, and the other will be available in the last week. More information will be available on Canvas.
- 10 points for **community professionalism**. This can be earned by completing course evaluations and related surveys. If 90% or more of all students complete all CAPEs and other course evaluation surveys in a mature and professional fashion (taking them seriously and providing timely and constructive feedback), 10 points will be awarded to everyone in the course.

Other opportunities may occur as necessary. Extra credit opportunities are always made available to the entire class, never to just one student.

### Late Policy

Because of the size of this class and the fast pace of the material, **we cannot award full points for assignments, quizzes, exams, or anything else submitted late** without our prior agreement. Late assignments will be given half-credit for one day after the due date, and after that they will be given no credit.

Remember that in nearly all cases, you can drop one or two assignments without any impact on your score. For example, you can drop 2 Biologist Journals, 1 Weekly Quiz, 1 Section Credit, 1 Writing Assignment Draft, 1 Writing Assignment, and 1 Exam. That means if you happen to miss one or turn it in late, or your life is too busy a certain week, it will not negatively impact your course score. Even if you miss the deadline for an assignment, we still highly recommend doing the work to prepare for class and exams.

Exception: **if you have a situation that would require you to miss substantial numbers of assignments, please reach out to us as soon as possible** so we can discuss accommodations.

**BILD 1 Class Culture**

BILD 2 is a **community of scientists** trying to increase their understanding of the biological world. The classroom culture is designed to engage you in collaborating and thinking like a scientist.

When people collaborate to work towards a common goal, in this case building our learning in BILD 1, we must **establish shared values** so that everyone understands acceptable ways of working together. In organizations, these are commonly called codes of conduct or ethics. In this course, we use the following statement, adapted from the International Center for Academic Integrity and Dr. Tricia Bertram Gallant, to explicitly state our values and describe the behaviors that maintain and protect these values.

	As students we will...	As the teaching team we will...
<b>Honesty</b>	<ul style="list-style-type: none"> <li>Honestly demonstrate your knowledge and abilities according to expectations listed in the syllabus or in relation to specific assignments and exams</li> <li>Communicate openly without using deception, including citing appropriate sources</li> </ul>	<ul style="list-style-type: none"> <li>Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams</li> <li>Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams</li> </ul>
<b>Responsibility</b>	<ul style="list-style-type: none"> <li>Complete assignments on time and in full preparation for class</li> <li>Participate fully and contribute to team learning and activities</li> <li>Take ownership of your own learning by using course and outside resources, including the BILD2 team, to clarify confusions and extend your knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Give you timely feedback on your assignments and exams</li> <li>Show up to office hours and class on time and be mentally and physically present</li> <li>Create relevant assessments and class activities</li> <li>Providing selected resources and a helpful environment to help you address your confusions and extend your knowledge</li> </ul>
<b>Respect</b>	<ul style="list-style-type: none"> <li>Speak openly with one another while respecting diverse viewpoints and perspectives</li> <li>Provide sufficient space for others to voice their ideas</li> </ul>	<ul style="list-style-type: none"> <li>Respect your perspectives even while we challenge you to think more deeply and critically</li> <li>Help facilitate respectful exchange of ideas</li> </ul>
<b>Fairness</b>	<ul style="list-style-type: none"> <li>Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams</li> <li>Not seek unfair advantage over fellow students in the course</li> </ul>	<ul style="list-style-type: none"> <li>Create fair assignments and exams and grade them in a fair and timely manner</li> <li>Treat all students and collaborative teams equitably</li> </ul>
<b>Trustworthiness</b>	<ul style="list-style-type: none"> <li>Be open and transparent about what we are doing in class</li> <li>Not distribute course materials to others in an unauthorized fashion</li> </ul>	<ul style="list-style-type: none"> <li>Be available to all students when we say we will be</li> <li>Follow through on our promises</li> <li>Not modify the expectations or standards without communicating with everyone in the course</li> </ul>

<b>Courage</b>	<ul style="list-style-type: none"><li>• Say or do something when we see actions that undermine any of the above values</li><li>• Accept the consequences of upholding and protecting the above values</li></ul>	<ul style="list-style-type: none"><li>• Say or do something when we see actions that undermine any of the above values</li><li>• Accept the consequences of upholding and protecting the above values</li></ul>
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## Course Policies

### Students with Disabilities

If you have a disability, **including mental health issues** such as anxiety and depression, that might affect your attendance or performance in this course, please contact us early in the quarter to work out reasonable accommodations to support your success. To ensure fairness and proper support, anyone who requests accommodations because of a disability must get a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). To contact OSD, use the student portal: <https://academicaffairs.ucsd.edu/sso/osdsp/home>, email the Biology OSD liaison at [bioosd@ucsd.edu](mailto:bioosd@ucsd.edu), or call 858-534-4382. The Office for Students with Disabilities will be open, particularly by email.

Whenever possible, we strive to use universal designs that are inclusive. If you have feedback on how to make the class more accessible and inclusive, please get in touch!

### Section Recording

**Section meetings will be recorded on Zoom.** You can find them on Canvas. (They will not be available at [podcast.ucsd.edu](http://podcast.ucsd.edu) because we will not be meeting together in a campus room.) Office hours will not be recorded because of privacy concerns.

### Academic Integrity and Originality

**Integrity of scholarship and learning is fundamental** to creating our classroom community and the academic community at large. The University expects that both students and faculty will honor this principle and in so doing protect the validity of University intellectual work.

For you, this means that all academic work you submit for this course should be **your own new original work**. We emphasize this for several reasons. First, **using your own thoughts and putting things in your own words helps you learn**. There is no better way to discover quickly what you understand and what you don't than to explain a concept to someone else. Second, in professional settings, trying to hide dishonest behavior or pass someone else's words off as your own can lead to trouble. To encourage original thought and writing in this class, we take precautions. For example, Canvas uses Turnitin to scan Biologist Journals for plagiarized materials. **Our goal is not to catch anyone** (although we can't give credit for dishonest work or plagiarized material), **but to help everyone make a habit of using their own thoughts and voice**.

In addition, part of being a good member of a community **is not facilitating dishonest behavior by others**. No course materials, particularly homework and exams, may be posted online, submitted to private or public repositories, or distributed to unauthorized people outside of the course.

To hold everyone accountable for their actions, any serious suspected instances of a breach of academic integrity will be reported to the Academic Integrity Office for review. For more information on academic integrity, please visit <https://students.ucsd.edu/academics/academic-integrity/index.html>.

## **Education Research Study**

We believe that one of the best ways to improve education is to conduct research studies. In this course, we are trying to figure out which versions of assignments best facilitate certain learning outcomes. So, students in some sections may be offered slightly different assignments than students in other sections. The different versions of the assignments will be worth the same amount of points and will cover the same content but in slightly different ways. Canvas will only allow you to complete the version of the assignment that is assigned to your section, so you cannot do the wrong version.

In addition, we are also planning on using the results of two extra-credit activities as part of our research. One of these activities will be offered at the beginning of the course and one at the end. We are not going to collect your personal details, so they will be done as communal extra credit: if 85% of student participates, everyone will receive extra credit. You will receive messages about these activities.

Participation in the study is completely voluntary. The data for the study will be collected anonymously, so I will not know whether you participated or how you responded.

The full consent form, which provides more details, is provided for you below and is also on Canvas. You will have the chance to consent or not consent when you participate in the extra credit opportunities.

### **Consent form**

University of California, San Diego  
Consent to Act as a Research Subject

#### ***Who is conducting the study, why you have been asked to participate, how you were selected, and what is the approximate number of participants in the study?***

Dr. Melinda T. Owens, Assistant Teaching Professor, is conducting a research study to find out more about how teaching can affect bias about different groups of scientists. You have been asked to participate in this study because you are in a class featuring Scientist Spotlights. There will be approximately 1000 participants in this study.

#### ***Why is this study being done?***

The purpose of this study is to better understand how Scientist Spotlights may affect student bias towards scientists of different groups, including women, Black, or Latinx scientists.

#### ***What will happen to you in this study and which procedures are standard of care and which are experimental?***

If you agree to be in this study, the following will happen to you:

You will participate in an Implicit Association Test (IAT) online. As part of the test, you will follow instructions that direct you to tap certain letters on your keyboard when some words or pictures are presented and other letters when other words or pictures are presented. The IAT is a well-known task that thousands of people have done that researchers believe may reflect your unconscious feelings. For more information, please click here: <https://implicit.harvard.edu/implicit/iatdetails.html>

After and before the IAT, you will answer some questions about yourself and your feelings about scientists. These questions will help us understand the relevant characteristics about the participants and how they feel about scientists from diverse groups. You will also be asked for which section you are formally enrolled in so we can see which Scientist Spotlights you were assigned.

You will also generate a “participant ID” from answers to various questions about yourself. This ID will likely be unique to you but will be anonymous. Generating this participant ID will allow us to see whether the same person has taken the survey more than once without revealing your identity.

We will not ask you for information that directly identifies you, like your name or student ID. Therefore, either participating or not participating in this study will not directly affect your grade or class standing. However, if 85% of the students enrolled in the course participate, everyone will be awarded 5 extra credit points.

***How much time will each study procedure take, what is your total time commitment, and how long will the study last?***

The study procedure, including the IAT and answering the survey questions, should take no more than 20min to complete.

***What risks are associated with this study?***

Participation in this study may involve some added risks or discomforts. These include the following:

1. A potential for the loss of confidentiality. However, we will not collect any information that will identify you. Data will be securely stored in secure servers owned by Project Implicit, the nonprofit foundation that hosts IATs, or either a password-protected Google Drive owned by UC San Diego that only the researchers have access to. Research records will be kept confidential to the extent allowed by law. Research records may be reviewed by the UCSD Institutional Review Board. **Your instructor will never have access to whether you agreed to participate or to your personal responses. We will not use any personally identifying information (your PID) to identify you.**
2. A potential for emotional distress. Some people find thinking about race or gender distressing. You may choose to stop your participation at any point, and your responses will still be counted for the communal extra credit.

Because this is a research study, there may also be some unknown risks that are currently unforeseeable. You will be informed of any significant new findings.

***What are the alternatives to participating in this study?***

The alternative to participation in this study is not to participate. If you click “disagree” below, your response will still be counted towards the percentage of responses needed for the class to receive extra credit.

***What benefits can be reasonably expected?***

There is no direct benefit to you from participating this study. The investigator, however, may learn more about bias about women and Black and Latinx people in science, and society may benefit from this knowledge.

***Can you choose to not participate or withdraw from the study without penalty or loss of benefits?***

Participation in research is entirely voluntary. You may refuse to participate or withdraw or refuse to answer specific questions at any time without penalty. If you decide that you no longer wish to continue in this study, you can simply quit at any point. Your response will still count towards the percentage of responses needed for the class to receive extra credit.

You will be told if any important new information is found during the course of this study that may affect your wanting to continue.

***Can you be withdrawn from the study without your consent?***

The PI may remove you from the study without your consent if the PI feels it is in the best interest of the study, for example if technical issues prevent you from completing the tasks. You may also be withdrawn from the study if you do not follow the instructions given you by the study personnel. In these cases, your response will still count towards the percentage of responses needed for the class to receive extra credit.

***Will you be compensated for participating in this study?***

You will not be compensated directly. However, if 85% of the students enrolled in the course participate, everyone in the course will receive 5 points of extra credit. This opportunity for communal extra credit will happen each time we ask you to complete an IAT for this study.

***Are there any costs associated with participating in this study?***

There will be no cost to you for participating in this study.

***Who can you call if you have questions?***

Dr. Melinda Owens and/or undergraduate research assistant Ms. Angelita Rivera has explained this study to you and answered your questions. If you have other questions or research-related problems, you may reach Dr. Owens at 415-290-8853 or [mtowens@ucsd.edu](mailto:mtowens@ucsd.edu).

You may call the Human Research Protections Program Office at 858-246-HRPP (858-246-4777) to inquire about your rights as a research subject or to report research-related problems.

### ***Helpful Resources at UCSD***

**If you are experiencing anxiety, depression, or worse, you are not alone.** On top of facing the normal stresses of college, many college students are in their late teens or early twenties, which is when many mental illnesses emerge for the first time because of brain maturation. In addition, you may be experiencing the effects of trauma or violence. Or, you might be one of the 19% of UC students who report not being able to access adequate food<sup>3</sup> or who do not have a safe, stable place to live.

Whatever your situation, whether your problems feel big or small, we encourage you to seek help and support, either from us or from professional resources on campus. Some are listed below. **These will all be open in some form (mostly online) in Winter quarter.**

<i>Help and Resources</i>		
<b>Academic Support</b>	<b>Psychology &amp; Physical Safety*</b>	<b>Basic Needs</b>
<p><b>OASIS (<a href="http://oasis.ucsd.edu">http://oasis.ucsd.edu</a>)</b> The Office of Academic Support &amp; Instructional Services (OASIS) offers math and science tutorial Programs for everyone. They also have services and scholarships for those of you who have overcome significant obstacles to become successful (like being first in your families to go to college).</p> <p><b>Teaching + Learning Commons (<a href="http://commons.ucsd.edu">http://commons.ucsd.edu</a>)</b> The Teaching + Learning Commons offers tutoring, consultations, and workshops on learning strategies as well as assistance with writing in the Writing + Critical Expression Hub.</p> <p><b>Educational Technology (<a href="https://digitallearning.ucsd.edu/learners/learning-remotely/tools.html">https://digitallearning.ucsd.edu/learners/learning-remotely/tools.html</a>)</b> EdTech has resources for understanding educational technologies like Zoom and Canvas.</p>	<p><b>CAPS (<a href="http://caps.ucsd.edu">http://caps.ucsd.edu</a>)</b> CAPS offers free, confidential counseling. They can help with urgent crises, such as an assault or thoughts of self-harm. They can also talk if you are worried about a friend or classmate.</p> <p><b>CARE at SARC</b> <a href="http://care.ucsd.edu">http://care.ucsd.edu</a> Campus Advocacy, Resources, and Education at the Sexual Assault Resource Center (CARE at SARC) offers support for those of you who have experienced sexual violence or violence from a partner. They have free confidential counseling, including on nights and weekends.</p>	<p><b>Triton Food Pantry (<a href="http://basicneeds.ucsd.edu/triton-food-pantry/">http://basicneeds.ucsd.edu/triton-food-pantry/</a>)</b> The Triton Food Pantry discreetly offers food for current UCSD students to ensure each of you has enough nutrition to get through the day.</p> <p><b>The Hub (<a href="https://basicneeds.ucsd.edu">https://basicneeds.ucsd.edu</a>)</b> The Hub serves those of you who have trouble accessing basic needs, including food or stable housing, or who have financial emergencies. They can help you connect with a variety of on- and off-campus programs, including the Food Pantry, CalFresh, emergency loans, emergency housing, or changes to your financial aid.</p>
<p><b>General summary of UCSD's virtual resources: <a href="https://vcsa.ucsd.edu/student-success/virtual-resources.html">https://vcsa.ucsd.edu/student-success/virtual-resources.html</a></b></p>		

It is also important to find a community of like-minded people around you. You may be interested in the following resources: the Black Resource Center ([brc.ucsd.edu](http://brc.ucsd.edu)), the Cross-Cultural Center ([ccc.ucsd.edu](http://ccc.ucsd.edu)), the LGBT Resource Center ([lgbt.ucsd.edu](http://lgbt.ucsd.edu)), the Raza Resource Centro ([raza.ucsd.edu](http://raza.ucsd.edu)), the Student-Parents Resource page ([students.ucsd.edu/well-being/wellness-resources/student-parents](http://students.ucsd.edu/well-being/wellness-resources/student-parents)), the Student Veterans Resource Center ([students.ucsd.edu/sponsor/veterans](http://students.ucsd.edu/sponsor/veterans)), the Women's Center ([women.ucsd.edu](http://women.ucsd.edu)).

<sup>3</sup> Martinez *et al.* 2016. University of California Global Food Initiative: Student Food Access and Security Study. <https://www.ucop.edu/global-food-initiative/best-practices/food-access-security/student-food-access-and-security-study.pdf>

\*Please note that while we on the instructional team are here to support you, instructors are obligated by law to notify UCSD's Title IX coordinator if a student (or any person at UCSD) discloses to us a personal experience of sexual harassment, sex or gender discrimination, domestic violence, or stalking. This is so that the University can properly address the issue. If you do not want your experiences to be reported, please contact CAPS or CARE, which can talk to you confidentially.

## Class Calendar Overview

More specific information will be provided weekly on Canvas. We may adjust the schedule, assignments, and readings as necessary while still focusing on the foundational concepts listed below.

Date	Guiding Questions	All assignments due <b>the night before at 11:50pm, unless otherwise specified</b>
<b>Class #1</b> <b>M Jan 4</b>	Welcome! What will be do together in BILD 1? How do I think like a biologist?	
<b>Class #2</b> <b>W Jan 6</b>	What is life? How do we define life using structure and function?	Biologist Journal #1
<b>Class #3</b> <b>F Jan 8</b>	How do we think across size and scale? What makes up the structure of living things?	More About You survey Biologist Journal #2
<b>Class #4</b> <b>M Jan 11</b>	What molecules make up the structure of living things? How do their structures serve their functions?	Week 1 Lecture Quiz
<b>Class #5</b> <b>W Jan 13</b>	What molecules make up cell membranes? How do their structures serve their functions?	Biologist Journal #3
<b>Class #6</b> <b>F Jan 15</b>	How do substances enter or leave through lipid membranes?	Biologist Journal #4
<b>M Jan 18</b>	Happy Martin Luther King Jr. Day! *	Week 2 Lecture Quiz
<b>Class #7</b> <b>W Jan 20</b>	<b>Exam 1</b> (up to and including lecture 5)	
<b>Class #8</b> <b>F Jan 22</b>	How do we know what reactions will happen inside a cell? What are enzymes?	Biologist Journal #5
<b>Class #9</b> <b>M Jan 25</b>	How will the structure of an enzyme affect its function?	Week 3 Lecture Quiz
<b>Class #10</b> <b>W Jan 27</b>	Where does all the matter and energy for living things come from? (Photosynthesis)	Biologist Journal #6 Writing Assignment #1 due <b>Wednesday night</b>
<b>Class #11</b> <b>F Jan 29</b>	Where does all the matter and energy for living things come from? (Photosynthesis)	Biologist Journal #7
<b>Class #12</b> <b>M Feb 1</b>	How do living things get matter and energy from food? (Cellular respiration)	Week 4 Lecture Quiz
<b>Class #13</b> <b>W Feb 3</b>	<b>Exam 2</b> (up to and including lecture 11)	
<b>Class #14</b> <b>F Feb 5</b>	How do living things get matter and energy from food? (Cellular respiration)	Biologist Journal #8
<b>Class #15</b> <b>M Feb 8</b>	What is the relationship between DNA, protein, and traits?	Week 5 Lecture Quiz
<b>Class #16</b> <b>W Feb 10</b>	How are genes expressed?	Biologist Journal #9 Writing Assignment #2 due <b>Wednesday night</b>
<b>Class #17</b> <b>F Feb 12</b>	Where do mutations come from? How do mutations cause cancer?	Biologist Journal #10
<b>M Feb 15</b>	Happy Presidents' Day! *	Week 6 Lecture Quiz



<b>Class #18</b> <b>W Feb 17</b>	<b>Exam 3</b> (up to and including lecture 16)	
<b>Class #19</b> <b>F Feb 19</b>	How do cells inherit mutations? What cells in the adult body are actively dividing? How is mitosis like a copy machine?	Biologist Journal #11
<b>Class #20</b> <b>M Feb 22</b>	How are mutations and traits passed between generations? How is meiosis like a slot machine?	Week 7 Lecture Quiz
<b>Class #21</b> <b>W Feb 24</b>	How are mutations and traits passed between generations? How is meiosis like a slot machine?	Biologist Journal #12 Writing Assignment #3 due <b>Wednesday night</b>
<b>Class #22</b> <b>F Feb 26</b>	What is the relationship between alleles and mutations? What is the relationship between genotype and phenotype?	Biologist Journal #13
<b>Class #23</b> <b>M Mar 1</b>	How do dominant and recessive alleles contribute to traits?	Week 8 Lecture Quiz
<b>Class #24</b> <b>W Mar 3</b>	<b>Exam 4</b> (up to and including lecture 22)	
<b>Class #25</b> <b>F Mar 5</b>	What is the chromosomal basis of Mendel's laws? How do we use Mendel's laws to make predictions?	Biologist Journal #14
<b>Class #26</b> <b>M Mar 8</b>	How do genes interact with each other and with the environment?	Week 9 Lecture Quiz
<b>Class #27</b> <b>W Mar 10</b>	How do cells pass signals within themselves?	Biologist Journal #15 Writing Assignment #4 due <b>Wednesday night</b>
<b>Class #28</b> <b>F Mar 12</b>	How will you use BILD 1 in the future? How can we make BILD 1 better?	Biologist Journal #16
<b>M Mar 15</b>	<b>Exam 5</b> (all lectures)	Week 10 Lecture Quiz
<b>F Mar 19</b>	Alternate Exam 5 time (all lectures)	
<b>Sat Mar 20</b>	<b>Final Reflection</b> due at 11:50pm	

\* Because of holidays, sections will not be held on this day. People who usually attend Monday sections may either attend sections on another day or complete an alternative assignment.