BILD 1: The Cell

UC San Diego – Winter 2024

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.

Our BILD 1 will have in-person lecture. We know from extensive educational research that **people from all sorts of backgrounds learn best** when they are **actively engaging with the material through thinking, writing, and discussing**.[1] We would like to foster that kind of classroom through encouraging regular in-person attendance.

In addition, we know from educational research that **courses with lots of low-stakes opportunities to explore ideas and get feedback** are generally better for student learning. Therefore, in addition to lectures, we will provide many opportunities for you to think about biology in low-stakes ways. These include **pre-lecture journal assignments, post-lecture discussion section problem sets,** and **post-lecture weekly quizzes.** You will be able to take the quizzes up to 3 times to get feedback on whether you understood the lecture concepts.

We also have a special set of assignments associated with learning the **chemistry behind life**. Cells are made up of molecules like enzymes and DNA, and these molecules are chemicals that follow chemical principles. To understand life, it is crucial to not only understand, but **master** some basic concepts about how molecules interact with each other. **This may seem daunting, but we will support you** by giving you multiple opportunities for practice and demonstrating your proficiency.

We will also give you many opportunities to **connect with the teaching team and your fellow students.** These include **in-person and Zoom office hours** by the professor and the IAs, which is time set aside for anyone to come to discuss the class or life in general, and **discussion sections.** If you cannot make those, there will be a **discussion board on Piazza** (www.piazza.com and linked through Canvas) where you can ask questions 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. Let's face this challenge together!

[1] Freeman *et al.* 2014. Active learning increases student performance in science, engineering, and mathematics. http://www.pnas.org/content/111/23/8410 ; Theobald *et al.* 2020. Active learning narrows achievement gaps for under-represented students in undergraduate science, technology, engineering, and math. https://www.pnas.org/content/117/12/6476

[2] 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

Professor contact information and lecture information

Name: Melinda T. Owens
Email: **mtowens@ucsd.edu**
Office hours: M 4-4:50pm outside of Peterson; Tu 2-2:50pm Zoom; Th 12-12:50pm Zoom

Lecture location and times (may attend either):

- Galbraith Hall 242, MWF 10-10:50am
- Peterson Hall 110, MWF 3-3:50pm

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

Day	Attend or Watch	Do
Monday	Monday's lecture Discussion section (some students)	Work on problem set questions for discussion section.
Tuesday		Do pre-lecture Biologist journal for Wednesday's lecture.
Wednesday	Wednesday's lecture	Go to IA's office hours. Ask a question and get a confusion clarified.
Thursday	Discussion section (some students)	Do pre-lecture Biologist journal for Friday's lecture.
Friday	Friday's lecture	Revise and submit writing assignment.
Weekend		Complete weekly quiz on Canvas. Get one question wrong, so immediately re-take it for full credit.

Quick guide to the BILD 1 Canvas site

Where are the lecture slides posted?

- Each lecture has a page on Canvas in the module corresponding to the week it occurs. The slides are posted on those pages.

Where can I see the assignments?

- Each assignment has a page on Canvas in the module corresponding to the week it is due. You can view the assignment there and either take it (if it is a Canvas page) or submit your work. You can also see all the assignment together if you go to the "Assignments" link on the left of the Canvas page.
- The exceptions are the assignments associated with the AChiBE (Acing Chemistry in Biology Education). Those are located together in the AChiBE module.

Where can I see the lecture podcasts?

- Lecture recordings are posted on the **Media Gallery**. The link to the Media Gallery is on the left of the Canvas page. You can also go to podcast.ucsd.edu.

Where is the syllabus?

- The syllabus is posted as a link in the first module on the Canvas page.

The office hours I'd like to attend are on Zoom. Where can I find the link?

- If you go to the Zoom tool, which is on the left of the Canvas page, you can see all the discussion sections, student hours, or other activities that are hosted on Zoon.

Where is the discussion board?

- We will be using Piazza, which is at www.piazza.com or can be found through the "Piazza" link on the left of the Canvas page.

Where can I see my midterm results?

- You will be able to see your graded midterm results in detail in Gradescope. For free-response questions, these results will include which rubric items your response did or did not earn. Gradescope will send you a link when your exam is graded, and you may also go to www.gradescope.com or click the "Gradescope" link on the left in the Canvas page.

Required and Optional Materials

Required: iClicker, iClicker2, or iClicker+. ***It must be registered at student.iclicker.com****. See details below.*
Optional: Textbook *Campbell Biology* (any edition after the 8th).
Lecture slides and all required course readings will be posted on Canvas. Many students find the textbook *Campbell Biology* or the associated online resource *Mastering Biology* useful, but **they are not mandatory.**

Connecting with the Teaching Team: Discussion Sections and Student Hours

Discussion section times: You may go to anyone's section.

Section	Day and Time	Location	IAs
A01	Th 5-5:50pm	Franklin Antonio Hall 1101	Kevin, Jasmin
A02	Th 6-6:50pm	Franklin Antonio Hall 1101	Kevin, Jermayne
A03	Th 7-7:50pm	Franklin Antonio Hall 1101	Kevin, Katelyn
A04	Th 8-8:50pm	Franklin Antonio Hall 1101	Kevin, Katelyn
B01	M 1-1:50pm	Podemos 1A18	Katie, Sydney
B02	M 3-3:50pm	Franklin Antonio Hall 1101	Katie, Amber
B03	M 6-6:50pm	Franklin Antonio Hall 1101	Katie, Sydney
B04	M 7-7:50pm	Franklin Antonio Hall 1101	Katie, Julia

Office hours: Office hours are for asking questions, hearing other people's questions, or just hanging out. You are encouraged to go to anyone's office hours. You do not have to arrive on time or stay the whole time. If these posted times work for you, you can just go- you do not have to let us know ahead of time. **If these times do not work for you, please contact us with your availability** for a different time.

Name	Role	Email	Office hour times and location
Melinda T. Owens	Asst. Teaching Professor Dept. of Neurobiology	mtowens@ucsd.edu	M 4-4:50pm, outside of Peterson Tu 2-2:50pm, Zoom Th 12-12:50pm, Zoom
Jasmin Amezcua	3rd year, Gen. Biology	jaamezcua@ucsd.edu	Tu 3:30-4:20pm, Art of Espresso
Julia Fiebert	3rd year, Microbiology	jfiebert@ucsd.edu	M 5-5:50pm, Starbucks
Katelyn Fong	4th year, Neurobiology	kjfong@ucsd.edu	W 11:30am-12:20pm, outside Starbucks
Sydney Grames	3rd year, Gen. Biology	sgrames@ucsd.edu	Tu 12:30-1:20pm, Art of Espresso
Amber Lawrence	3rd year, Neurobiology	avlawrence@ucsd.edu	Th 1:00-1:50pm, Zoom
Jermayne Le	4th year, Neurobiology	jtl001@ucsd.edu	W 4:30-5:20pm, outside Peterson
Katie Short	Bio MS on microbiology	kshort@ucsd.edu	Th 11:15-12:05pm, Art of Espresso Th 5-5:50pm, Zoom
Kevin Wei	Bio MS on gut microbes and digestive disease	hwei@ucsd.edu	F 3:30-4:20pm, 64 Degrees

The Basics: Enrollment and the Waitlist

If you are on the waitlist, you may be concerned and frustrated about whether you can enter the class. You may need this course to graduate or be unable to attend the other lecture sections of BILD 1. However, in Biological Sciences, **the instructor has no control over the waitlist or who can enter the course.**

Movement off the waitlist is handled **solely** by the Registrar and is based only on whether people enrolled **in your discussion section** drop the course. If someone does drop, the next person on the waitlist is automatically enrolled. The instructor cannot add more seats or more sections. (Any information online that implies otherwise is either outdated or not applicable to Biological Sciences.) In short, **there is nothing you or the instructor can do to get you off the waitlist and into the class.**

There is usually a great deal of movement in and out of the class in the first week. That said, remember that your waitlist number is the number for your particular discussion section. People in your discussion section must drop before you can get in.

If you are on the waitlist and want to get into the course, we encourage you to complete assignments as if you were enrolled, so that you won't be behind if you do get in. Waitlisted students should all have Canvas access starting from roughly 24hr after you get on the waitlist. That means that being on Canvas does not mean you are enrolled.

Good luck! If it looks like you may not be able to get into the course but you really need to take it, please contact the Virtual Advising Center (vac.ucsd.edu) or another advisor to discuss your options.

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.

Grades will be posted regularly on Canvas. The final grade on Canvas automatically takes drops into account.

How Your Letter Grade will be Assigned

Grade assignments will be based on the percentage of total points earned. Numeric grades are rounded to the nearest integer before assigning a letter grade. We believe that your grade should ultimately reflect *your* effort and understanding, not anyone else's, and want to encourage everyone to help each other. Therefore, **no grades are ever curved.** We do not decide your grade, but rather **you as a student do the work to earn your grade**. (But we are delighted to help you strategize about how you can maximize your learning.)

%	Grade	%	Grade	%	Grade	%	Grade
>98	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-		

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 description of how your answer compares to the rubric or answer key and why you think it should have earned more points.

How Your Grade will be Calculated

Course Component	Total Points	% of Grade
Lecture Participation	**235**	**19%**
Lecture attendance (12 @ 5 points each)	60	
More About You survey	10	
Pre-lecture Biologist Journals (14 @ 5 points each)	70	
Weekly Quizzes (7 @ 10 points each)	70	
BILD 1 Follow-up Survey	5	
Final Reflection	20	
Section Participation	**90**	**7%**
Section participation OR alternate activity (9 @ 10 points)	90	
Acing Chemistry in Biology Education (AChiBE)	**50**	**4%**
AChiBE Pre-assessment quiz	10	
AChiBE 90% Post-assessment quiz	40	
Writing Assignments	**150**	**12%**
Highest scoring writing assignment	50	
Next highest scoring writing assignment	50	
Third highest scoring writing assignment	50	
Exams	**720**	**57%**
Highest scoring midterm	120	
Next highest scoring midterm	120	
Third highest scoring midterm	120	
Final exam	360	
Professionalism	**15**	**1%**
TOTAL	**1260**	**100%**

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

Each day, you may attend either lecture section. As stated above, **active participation in lecture is important for your learning.** Therefore, every day, we will engage in in-class activities and use **iClickers**. iClicker usage is how we measure lecture participation for points. More importantly, we use the iClicker results to adjust our teaching in real-time to help students understand the material. **If you cannot afford or obtain an iClicker, contact us.**

For your iClicker to correctly be associated with your name, **you must register your clicker on student.iclicker.com.** Go to "profile", "add remotes", and add the clicker code on the back of your remote. (There are more detailed instructions and a video walkthrough here: https://www.iclicker.com/all-access-

remote-registration.) You can use a used iClicker or share an iClicker with someone in another class. However, you cannot share with someone else who is also in Dr. Owens' BILD 1 this quarter. Please be aware that it is dishonest and does not represent your learning if someone else uses your iClicker in class when you are not there, so in that situation we cannot give participation points to you or the person using your iClicker.

We will start counting iClicker participation for points starting on the Monday of Week 2. Everyone gets sick or experiences different circumstances and life events. Therefore, to get full attendance points, you only need to attend and click in for **12 lectures (out of 21 total),** which allows you to miss 3 weeks (9 class sessions) of class after the first week. **If you feel sick, we encourage you to use these dropped lectures and stay home.**

If you believe that you might have a situation or condition that will cause you to miss more than 3 weeks of lectures, please contact us right away, *so we can strategize about accommodations.*

If we cannot meet for lecture

If we cannot meet for some lecture for whatever reason, there will be an online lecture for that day. In that case, everyone will receive full attendance credit for that day. The online lecture will be posted in the Media Gallery and on the Canvas page for that lecture.

Online lectures will be **asynchronous** to give you flexibility in your schedule and in recognition of technical issues like poor Wifi. During lectures, you will answer questions posed 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

Once or twice a week, 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. If they require you to read an outside paper that is not freely available, the article will be posted above the Journal prompt. Due dates are on Canvas and the schedule at the end of this syllabus.

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

After the first two weeks, there will be a weekly **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 more difficult questions that test application of fundamental knowledge. Quizzes will be auto-graded on correctness, but we will allow you **3 attempts** to get full credit. After each attempt, Canvas will give feedback on incorrect answers.

In addition, we will ask 1-3 optional ungraded open-ended questions that allow you to give feedback to us about your experiences in the course.

Quizzes will be due every week on Canvas. Due dates are on Canvas and the schedule at the end of this syllabus. Completion of at least 85% of quizzes (7/8) will give you full credit, as the lowest quiz score will be dropped.

Acing Chemistry in Biology Education (AChiBE) assignments

We have a special set of assignments in the first two weeks of the course associated with learning the **chemistry behind life**. Cells are made up of molecules like enzymes and DNA, and these molecules are chemicals that follow chemical principles. To understand life, it is crucial to not only understand but **master** some basic concepts about how molecules interact with each other.

This may seem daunting, but we will support you by giving you extra study materials, multiple opportunities for practice and demonstrating your proficiency. Although these assignments can be completed in any order, we expect that most students will do the following:

1. Take the **AChiBE Pre-assessment Quiz,** due at the end of the first week of class. The purpose of this quiz is to give you a sense of which chemistry topics you already understand or do not understand. If you get a question wrong, it will state the topic and link to a supplemental AChiBE module on that topic. Although it will initially give you a grade based on your performance, **after the quiz is due, the grade of everyone who took this assessment will be changed to a 10.**

2. Complete **optional AChiBE modules** on topics that are not yet mastered. For each topic, there is a module that contains pre-assessment questions, a video explainer designed by previous BILD 1 students that explains the chemistry topic in a real-world context, and post-assessment questions to help you understand whether you are solid in your learning. These are not graded, and you can answer the questions and watch the videos as many times as you'd like.

3. Come to an **optional Chemistry Chlinic** in week 2. The teaching team will be running extra online student hours in week 2 focused on chemistry. There will be extra practice and chances to ask questions.

4. Take the **AChiBE 90% Post-assessment Quiz,** due at the end of the second week of class. This will have questions that are similar to the pre-assessment and module post-assessment questions to test whether you have mastered the chemistry material.
   In order to get full credit on this assessment, you must score at least 90% on it (i.e. get at least 18 out of 20 questions correct). All students who score at least 36/40 will have their scores adjusted to 40pts. **Students who do not achieve at least 90% will receive 20pts for the assessment, regardless of their score.** However, you may take the assessment up to 50 times (the questions change slightly each

time), and if you score less than 36/40, you are encouraged to review the study materials and contact the teaching team to fully the material. Scores will be adjusted according to these guidelines after the assignment is due.

We believe that everyone can learn this material and that doing so will help you immensely in learning biology. We are here to support you in your journey!

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 exam free response questions 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, for each writing assignment, you will turn in a draft as part of a Biologist Journal and give peer feedback on other student's drafts in discussion section. Then, 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. Due dates are on Canvas and the schedule at the end of this syllabus. 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 Canvas 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?"

Section Attendance Credit

Weekly discussion sections are designed to **engage you in applying your knowledge and** exercising your skills in **collaborative problem solving**. Some sections will be held in-person, and some will be held online on Zoom. 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 (either in-person or online) 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** from either the A00 or B00 lecture sections. In section, you will work with others to collaboratively explain and understand the problem set and conduct peer reviews.
- **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 or to complete the alternate written assignment, depending on your schedule that week. If you choose to do the alternate written assignment, due dates are posted on Canvas.

If your section is cancelled because of a holiday, you have the same two options: attend another section the same week or complete the alternate written assignment by the due date.

Getting section credit, either through attendance 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.

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

Exams will be in-person. You will handwrite your responses on an exam paper we give you. You may bring **one 8.5"x11" study sheet** to the exam that can be filled, back and front, with your notes (three sheets for the Final Exam). Other than that, you may not use any other aides. You will not need a calculator.

The dates for the exam are in the Course Schedule in the back of this syllabus. **If you need to miss an exam date, please let us know as soon as is reasonable, so that a make-up can be arranged.** The make-up will also be in-person. We anticipate that most make-up exams will be arranged through the Triton Testing Center. To schedule a test at the Triton Testing Center, please get permission from Dr. Owens and then follow the instructions here: https://tritontesting.ucsd.edu/for-students/scheduling-a-test.html Make-up midterm exams can be scheduled from two days before to six days after the exam, while a make-up Final Exam can be scheduled during Finals week. The Triton Testing Center requires at least two days notice, so it is important to contact us promptly.

Because creating a good exam takes a lot of time, we unfortunately cannot give someone a makeup exam once they have started that particular exam. If you feel that you might be sick or unable to complete the exam once you have started it, it is better to not open the exam at all and to arrange for a makeup at a later date.

Your lowest midterm grade will be dropped automatically. If you miss one of the midterms, that will be the midterm dropped. However, the Final Exam is worth three times as many points as a midterm because it is three times the length of a midterm. Therefore, **everyone must take the final exam; it cannot be dropped.**

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.

By default, we assume everyone is professional, so this component is automatically awarded to you near 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 in order to learn how to correct one's own ideas
- Reporting errors or issues in class, on assignments, or in 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
- Ignoring safety guidelines, such as taking off one's mask during class
- 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 in lecture, 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 several 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 for **community professionalism**. This can be earned by completing the SET (student evaluation of teaching) course evaluations. If 90% or more of all students complete SETs, 5 points will be awarded to everyone in the course.

Other opportunities may arise. 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, or anything else submitted late** without our prior arrangement. Late assignments, no matter how late, will be given half 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 Discussion Section Credit, 1 Writing

Assignment, and 1 Midterm. 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 1 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. It is important for us to make sure that how we teach this course and how we accommodate different student needs reflects the differences of race, ability, sexual orientation, age, and gender identity that enrich our classroom experience and campus.

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. We abide by the **UCSD Principles of Community**:

- We reject acts of discrimination
- We affirm the right to freedom within the bounds of respect, courtesy, confidentiality, and sensitivity.
- We support and promote a community in which all people can work and learn together in an atmosphere free of demeaning or abusive treatment.

In addition, we have additional values outlined in the following statement that explicitly state our values and describe the behaviors that maintain and protect these values. This statement has been adapted from the International Center for Academic Integrity and Dr. Tricia Bertram Gallant.

	As students we will…	As the teaching team we will…
Honesty	• Honestly demonstrate your knowledge and abilities according to expectations listed in the syllabus or in relation to specific assignments and exams • Communicate openly without using deception, including citing appropriate sources	• Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams • Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams
Responsibility	• Complete assignments on time and in full preparation for class • Participate fully and contribute to team learning and activities • Take ownership of your own learning by using course and outside resources, including the BILD2 team, to clarify confusions and extend your knowledge	• Give you timely feedback on your assignments and exams • Show up to office hours and class on time and be mentally and physically present • Create relevant assessments and class activities • Providing selected resources and a helpful environment to help you address your confusions and extend your knowledge

Respect	• Speak openly with one another while respecting diverse viewpoints and perspectives • Provide sufficient space for others to voice their ideas	• Respect your perspectives even while we challenge you to think more deeply and critically • Help facilitate respectful exchange of ideas
Fairness	• Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams • Not seek unfair advantage over fellow students in the course	• Create fair assignments and exams and grade them in a fair and timely manner • Treat all students and collaborative teams equitably
Trustworthiness	• Be open and transparent about what we are doing in class • Not distribute course materials to others in an unauthorized fashion	• Be available to all students when we say we will be • Follow through on our promises • Not modify the expectations or standards without communicating with everyone in the course
Courage	• Say or do something when we see actions that undermine any of the above values • Accept the consequences of upholding and protecting the above values	• Say or do something when we see actions that undermine any of the above values • Accept the consequences of upholding and protecting the above values

Diversity, Equity, and Inclusion

We believe very strongly that **biology is for everyone,** including those who have been excluded from it in the past, and that biology knowledge **can help us achieve a healthier, more just, and more equitable society,** even if it has not always been used that way. We want our classroom to be a place where everyone can expand their knowledge and experiences safely, while being respected and valued. Thus, we support the values of UC San Diego to "create a diverse, equitable, and inclusive campus in which students, faculty, and staff can thrive" and strive to uphold the values articulated by the Office of the Vice Chancellor for Diversity, Equity, and Inclusion: "We believe that true excellence is achieved through productive relationships among people of diverse perspectives. When the collective talents of our students, faculty, and staff at UC San Diego are united in an environment that is open and inclusive, creativity and innovation prospers." We invite you to join us in creating a class that upholds these values to further enhance our learning as a community.

Land acknowledgement

We hold great respect for the land and the original people of the area where our campus is located. UCSD is built on the unceded territory of the Kumeyaay Nation. Today, the Kumeyaay people continue to maintain their political sovereignty and cultural traditions as vital members of the San Diego community. We support efforts to redress the forcible taking of land and other injustices against the Kumeyaay and other indigenous peoples. If you are a California resident who is a member of a Native American or Alaska Native tribe, you may be eligible for a full-tuition scholarship from the UC Native American Opportunity Plan or another scholarship fund. To learn more, please visit: https://admission.universityofcalifornia.edu/tuition-financial-aid/types-of-aid/native-american-opportunity-plan.html

If you have any concerns about what you will experience in this course, please contact us.

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, 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!

Podcasts and Lecture Recording

Whenever possible, **classes will be recorded and made available online** as a resource for learning (http://podcast.ucsd.edu and linked on Canvas). However, remember that active participation and contribution are highly encouraged, and many important concepts and ideas will be developed collaboratively by doing in-class activities that cannot be replicated by watching a video.

Supplemental Instruction (SI)

The Teaching and Learning Commons supports your learning in BILD 1 through hosting SI study sessions, which give extra practice with the material through doing group problem-solving.

This term, your SI leaders are TBD. Information for SI study sessions can be found at https://aah.ucsd.edu/supplemental-instruction/. While we encourage you to participate in SI, participation in an SI session does not substitute for attending a regular discussion section.

Leader	Leader email	Day, Time, Location
Leo Feng	j8feng@ucsd.edu	TBD
Leo Feng	j8feng@ucsd.edu	TBD
TBD		
TBD		

Academic Integrity and Originality

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

For you, this means that all academic work you submit for this course should be **your own new original work.** Although you can use other people or online tools such as ChatGPT to help research a subject or check your work for spelling, grammar, or factual errors, we expect that **you will do the thinking and writing yourself**.

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.

Use of ChatGPT and other artificial intelligence tools

ChatGPT and other artificial intelligence such as Bard and Bing Chat are online services that can answer questions in human-like ways. These tools can help you in many tasks. However, they have serious downsides. As they merely string words together without employing logic, they may not give the correct answers to questions that require logical analysis. They also do not understand how we will be evaluating their writing.

In this course, you may use ChatGPT and other artificial intelligence tools as one resource for understanding topics or to do non-logic tasks like checking your spelling or grammar. **However, you may not submit a response that is substantially authored by an artificial intelligence tool as your own final work.** In addition, remember that whatever you do, you are ultimately responsible for the work you turn in and, more importantly, for **the learning that does or does not take place**. For example, if you do not write your own submission for a Writing Assignment, you may have difficulty answering a similar question on the Final Exam.

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 understand the effect of the AChiBE (Acing Chemistry Education in Biology Education) activities. The researchers will analyze some of your survey results and exam scores, which will all be anonymized before being shared with them. Participation will only involve the completion of surveys and completing exams as normal.

Participation in the study is completely voluntary and anonymous, and it does not affect your points or anything else in the course. I will not even know whether you are participating under after final grades have been posted. If you'd like to opt out of participating in the study, please go to https://forms.gle/2vVoPpWWVoY3fnLf6.

The consent form, which also has more information about the study, is given below.

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

Assessing the Impact of the Acing Chemistry in Biology Education (AChiBE) Program

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?

Melinda T. Owens and Claire Meaders and their research associates are conducting a research study to find out more about how the Acing Chemistry in Biology Education (AChiBE) program affects student learning and experience in the classroom. You have been asked to participate in this study because you are a student in a class that is being studied or used as a control. There will be approximately 900 participants in this study.

Why is this study being done?

The purpose of this study is to create knowledge that has the potential to improve the learning and educational experience of introductory biology students at UC San Diego and beyond.

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:

- Your data from this class including grades, homework and exam submissions, and survey responses will be included in the analysis to determine the effectiveness of the AChiBE program used in this course compared to other similar courses.

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

Your participation involves only agreeing to let us use your data in our analysis. It will require no time on your part above the time you put into this course without agreeing to the study.

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. Your instructor will render the data confidential by removing any personally identifying information before it is shared with the research team. Thus, data will only be kept in anonymized form for research purposes. No personally identifying data with people outside our research team. Your instructor will not know whether or not you are participating in this study until after the course is over and final grades are submitted. Research records will be kept confidential to the extent allowed by law. Research records may be reviewed by the UCSD Institutional Review Board.

Since this is an investigational study, there may 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 alternatives to participation in this study are not to participate. If you choose to opt-out of participating in this research study, we will exclude your data from analysis. Whether you participate will have no impact on your experience or grade in the associated class as your professor will not know who is or is not participating in the study until after the term is over.

What benefits can be reasonably expected?

There is no direct benefit to you for participating in the study. The investigator, however, may learn more about how to improve student learning, 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 on a survey or questionnaire at any time without penalty or loss of benefits to which you are entitled, like grades. If you decide that you no longer wish to continue in this study at any time, simply respond to the online opt-out form here: https://forms.gle/2vVoPpWWVoY3fnLf6.

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 there is incomplete data or plagiarized responses. You may also be withdrawn from the study if you do not follow the instructions given you by the study personnel.

Will you be compensated for participating in this study?
You will not be compensated for participating in 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?
Melinda Owens, Claire Meaders, or one of their associates has explained this study to you and answered your questions. If you have other questions or research-related problems, you may reach Melinda Owens at mtowens@ucsd.edu or (415) 290-8853.

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.

Your Consent
If you consent to participate in this study, no action is needed. If you **do not** consent to participate in this study, or you choose to opt-out at any time during the quarter, please submit this form online at https://forms.gle/2vVoPpWWVoY3fnLf6. Your instructor will not have access to the list of students who opted out until after the term is over.

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[3] 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.

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), the Cross-Cultural Center (ccc.ucsd.edu), the LGBT Resource Center (lgbt.ucsd.edu), the Intertribal Resource Center (https://itrc.ucsd.edu/), Raza Resource Centro (raza.ucsd.edu), the APIMEDA Programs and Services page (https://apimeda.ucsd.edu/), the Student-Parents Resource page (students.ucsd.edu/well-being/wellness-resources/student-parents), the Student Veterans Resource Center (students.ucsd.edu/sponsor/veterans), the Undocumented Student Services page (https://uss.ucsd.edu/), and the Women's Center (women.ucsd.edu).

[3] 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

Help and Resources

Academic Support

OASIS (http://oasis.ucsd.edu)
The Office of Academic Support & 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.

Teaching + Learning Commons (http://commons.ucsd.edu)
The Teaching + Learning Commons offers tutoring, consultations, and workshops on learning strategies as well as assistance with writing in the Writing + Critical Expression Hub.

1st Gen Student Success Coaching Program (https://successcoaching.ucsd.edu/)
The 1st Gen Student Success Coaching Program offers coaching that addresses academics, skill development, and advocacy for those of you who are in the first generation in your family to go to college.

Educational Technology (https://digitallearning.ucsd.edu/learners/learning-remotely/tools.html)
EdTech has resources for understanding educational technologies like Zoom and Canvas.

Psychology & Physical Safety*

CAPS (http://caps.ucsd.edu)
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. (However, it may take a while to get ongoing services.

CARE at SARC (http://care.ucsd.edu)
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.

Basic Needs

Triton Food Pantry (http://basicneeds.ucsd.edu/triton-food-pantry/)
The Triton Food Pantry discreetly offers food for current UCSD students to ensure each of you has enough nutrition to get through the day.

The Hub **(https://basicneeds.ucsd.edu)**
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.

Other Situations

Dean of Student Affairs of your College
Each of UCSD's Colleges has a Dean of Student Affairs who can help students in challenging situations. They can pull together campus and outside resources and reach out to instructors and campus resources on your behalf. If you are not exactly sure what you need or how UCSD can help, they are a good place to start. They are also a good place to turn to if you are worried about another student.

*Please note that although we want to help 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.

Week 2, Green: AChiBE week! We will be holding extra office hours to support your learning.

Date	Guiding Questions	All assignments due the night before at 11:59pm, unless otherwise specified
Class #1 M Jan 8	Welcome! What will we do together in BILD 1? How do I think like a biologist?	
Class #2 W Jan 10	What is life? How do we define life using structure and function?	Biologist Journal #1
Class #3 F Jan 12	How do we think across size and scale? What makes up the structure of living things?	More About You survey Biologist Journal #2
M Jan 15	Happy Martin Luther King Jr. Day!	AChiBE pre-quiz
Class #4 W Jan 17	What molecules make up the structure of living things? How do their structures serve their functions?	Biologist Journal #3
Class #5 F Jan 19	What molecules make up cell membranes? How do their structures serve their functions?	Biologist Journal #4
Class #6 M Jan 22	How do substances enter or leave through lipid membranes?	AChiBE Proficiency Assessment
Class #7 W Jan 24	**Midterm 1** (up to and including the structure and function of lipids)	
Class #8 F Jan 26	How do we know what reactions will happen inside a cell? What are enzymes?	Biologist Journal #5
Class #9 M Jan 29	How will the structure of an enzyme affect its function?	Week 3 Lecture Quiz
Class #10 W Jan 31	Where does all the matter and energy for living things come from? (Photosynthesis)	Biologist Journal #6
Class #11 F Feb 2	Where does all the matter and energy for living things come from? (Photosynthesis)	Biologist Journal #7 Writing Assignment #1 due **Friday night**
Class #12 M Feb 5	How do living things get matter and energy from food? (Cellular respiration)	Week 4 Lecture Quiz
Class #13 W Feb 7	**Midterm 2** (up to and including photosynthesis)	
Class #14 F Feb 9	How do living things get matter and energy from food? (Cellular respiration)	Biologist Journal #8
Class #15 M Feb 12	How do cells receive and act on outside signals?	Week 5 Lecture Quiz
Class #16 W Feb 14	What is the relationship between DNA, protein, and traits?	Biologist Journal #9
Class #17 F Feb 16	How are genes expressed?	Biologist Journal #10 Writing Assignment #2 due **Friday night**

M Feb 19	Happy President's Day!	Week 6 Lecture Quiz
Class #18 W Feb 21	**Midterm 3** (up to and including the central dogma)	
Class #19 F Feb 23	Where do mutations come from? How do mutations cause cancer?	Biologist Journal #11
Class #20 M Feb 26	How is DNA copied? How do cells inherit mutations?	Week 7 Lecture Quiz
Class #21 W Feb 28	What cells in the adult body are actively dividing? How is mitosis like a copy machine?	Biologist Journal #12
Class #22 F Mar 1	How are mutations and traits passed between generations? How is meiosis like a slot machine?	Biologist Journal #13 Writing Assignment #3 due **Friday night**
Class #23 M Mar 4	What is the relationship between alleles and mutations? What is the relationship between genotype and phenotype?	Week 8 Lecture Quiz
Class #24 W Mar 6	**Midterm 4** (up to and including meiosis)	
Class #25 F Mar 8	How do dominant and recessive alleles contribute to traits?	Biologist Journal #14
Class #26 M Mar 11	How do dominant and recessive alleles contribute to traits?	Week 9 Lecture Quiz
Class #27 W Mar 13	How do genes interact with each other and with the environment?	Biologist Journal #15
Class #28 F Mar 15	How will you use BILD 1 in the future? How can we make BILD 1 better?	Biologist Journal #16 Writing Assignment #4 due **Friday night**
M Mar 18		Week 10 Lecture Quiz
W Mar 20, F Mar 22	**Final Exam, W 3-6pm or F 8-11am (all material)** **(Can express a preference for either time)**	
Sun Mar 24	Final Reflection due at 11:50pm	