"Knowing how to think empowers you far beyond those who know only what to think."
– Neil deGrasse Tyson

Course Information

Course Description	BILD 1 is an introductory course on the molecular and cellular biology of microbes, plants and animals for Biology majors. The course focuses on structures and mechanisms of action required for the smallest unit of life – the cell.
Credits	4
Instructor	Prof. Keefe Reuther (Call me Dr. Keefe or Dr. K) Email address: kdreuther@ucsd.edu (please put BILD 1 in the subject line)
Course Format	This is an in-person course. Please see the grading and assessment guide
Synchronous Course Elements	Lectures: Monday AND Wednesday 2:00pm - 4:50pm Mandeville Hall B-150 (all lectures will be recorded for both synchronous and asynchronous remote viewing) Discussion: Your registered time (see next table) including some group work and other assessments and projects. The final exam (Friday 9/8 3:00p-6:00p)
Asynchronous Course Elements	Quizzes (posted each Thursday and due Sunday 11:59pm on Canvas) Study Activity: (posted each Sunday night and due the following Sunday 11:59pm on Canvas)

INSTRUCTIONAL ASSISTANTS AND DISCUSSION SECTION TIMES:

SECTION	DAY	TIME	BUILDING	ROOM	IA	EMAIL
B01	MW	1:00p-1:50p	MANDE	B-150	Cynthia	czhe@ucsd.edu
B02	MW	5:00p-5:50p	MANDE	B-150	Sahithi	syeturu@ucsd.edu

BILD 1 Learning Outcomes:

Content Learning Outcomes:
1. Compare and contrast how the structures and elements of prokaryotic cells, eukaryotic cells, and viruses impact how they function.
2. Explain the relationship between chemical structure and function of molecules such as DNA, RNA, proteins, amino acids, and lipids.
3. Predict how and when molecules may enter or exit cells through various pathways in the cell membranes.
4. Analyze how energy is produced and used by cells, including processes such as cellular respiration and photosynthesis.
5. Explain how cells receive and act on external chemical signals, including the stages of cell signaling and how signals are amplified.
6. Apply the central dogma to explain how genes give rise to the traits we observe in organisms.
7. Explain how gene expression can be modulated.
8. Explain mechanisms that lead to genetic diversity including mutation and meiotic recombination.
9. Explain patterns and mechanisms of inheritance.
10. Analyze how the environment interacts with genotypes to produce phenotypes.

Competency Learning Outcomes:
1. Evaluate claims based on scientific evidence and reasoning.
2. Uses feedback from exams and assignments to adjust study strategies.

Lecture Schedule:

Class	Lecture Topic
1	What is life?, Chemistry of Life; Macromolecules (CLO 2)
2	Cell Structure; Membranes (CLO 1 and 3)
3	Metabolism; Cellular Respiration (CLO 4)
4	Cellular Respiration; Photosynthesis (CLO 4)
5	Cell Communication (CLO 5) DNA Replication (CLO 6)
6	MIDTERM ; Transcription and Translation (CLO 6) Gene Regulation (CLO 7)
7	The Cell Cycle; Meiosis; Mutation (CLO 8)
8	Mendelian Genetics; Inheritance (CLO 9)
9	Extensions of Inheritance (CLO 10)
10	Bringing it all together: cancer and CRISPR-Cas9

BILD 1 Grading guide
DR. KEEFE SUMMER '23

Weekly Canvas Quizzes (25%)

- Each quiz will open Thursday at 5pm PST on the course Canvas site. You will have 60 minutes and 1 attempt.
- There will be a quiz weeks 1-5.
- Your lowest score will be dropped.
- No late or makeup quizzes - the key will be posted the next day.
- Each quiz is non-cumulative and covers materials and concepts from that week in lecture.

Due: Every Sunday @ 11:59pm (Weeks 1-5)

Weekly Study Activities (15%)

- Each study activity will post Sunday and will be due the following Sunday at 11:59pm PST (Beginning week 1)
- You may use your discussion section to work on this activity collaboratively. However, you may not copy or plagiarize the work of others.
- Your lowest score will be dropped.
- Late penalty is -2% per hour for any reason.
- After 48 hours or if assignment can't be completed, then you will receive a 30% credit for the missing assignment.

Due: Every Sunday @ 11:59pm (Weeks 1-5)

Lecture Participation (10%)

- Participation in lecture weeks 1-5 will be recorded.
- Download the Mentimeter app. No account or $ needed.
- You may miss up to 2 lectures and still receive full credit.
- You may not receive credit for a lecture you do not attend and participate on the app for any reason. I understand that life happens (e.g., sickness). This is why you can miss up to 2 lectures and still receive full credit.

Lecture MW @ 2:00p-4:50p Mandeville B-150

Midterm 1 (20%)

- It is in-class and must be taken at the scheduled time.
- IT WILL COVER MATERIAL FROM WEEKS 1 and 2
- You get a single 6"x 4" notecard of your own creation and a basic calculator. The notecard must have your name on it and be turned in with exam.

In-class Wednesday of week 3

Final Exam (30%)

- Cumulative with material roughly divided:
  - 40% midterm
  - 60% new material
- You get a single 6"x 4" notecard of your own creation and a basic calculator. The notecard must have your name on it and be turned in with exam.
- Missing the final exam for any reason will be handled according to the School Incomplete Policy.

Friday 9/8/23
3p-6p

Extra Credit +1%

- Complete course survey by the end of week 5 for 0.5% EC if 80% of the class responds.

NOTE: Appropriate exceptions will be made for students with AFA letters.

CONTACT:

This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Find our class signup link at: https://piazza.com/ucsd/summer2023/bild1_s223_b00

The best way to contact me directly is via email: kdreuther@ucsd.edu. On all emails PLEASE put BILD 1 in the subject line to indicate that the email pertains to this course. If you email about anything regarding your status in the course, please include your UCSD username, and PID. Please use Piazza instead of emailing Dr. Keefe for any course content questions.

TEXTBOOK:

Campbell Biology, 11 Edition, available at the Price Center Bookstore. It is **OPTIONAL**. I also have posted freely downloadable OpenStax textbooks on Canvas.

LECTURE 'NOTES':

A pdf of figures and pictures from the lecture PowerPoints will be posted on Canvas. The lecture will be videocast.

WEBSITE:

Everything related to the class is kept on the Canvas site (https://Canvas.ucsd.edu/webapps/login/). Announcements will be posted on the Canvas site. Check the site often! All grades will be posted on Canvas.

MENTIMETER:

We will use this free iOS, Android, or web app to participate in class and mark attendance. Please download from your preferred app store.

LEARNING PHILOSOPHY:

This course is designed to be an environment for everyone to learn and construct a shared understanding of the material. **Active participation** by engaging with the lecture material, asking and answering questions, and contributing to breakout sessions during discussion time is expected. Being able to communicate understanding, and confusion, is critical to success in any discipline, and is very useful for learning. To encourage collaboration, section activities will be done in groups, and grades will not be assigned on a curve. Instead of

memorization, we will focus on developing an understanding of fundamental concepts as they apply to different examples. Therefore, assignments and assessments will include questions that are based on solving problems in a new context.

WEEKLY STUDENT DELIVERABLES

All due times are 11:59pm PST	
Sunday EVERY WEEK	Quizzes, Study Activities
Monday/Wednesday EVERY WEEK	Lecture Attendance (See grading and assessment guide)
Friday week 1	First Day Survey #FinAid
Wednesday week 3	Midterm
Finals Day	Final Exam

ASSESSMENT:

The general grading scheme is as follows, although it may be adjusted to improve everyone's grades if necessary. BILD 4 is not graded on a curve, i.e. 20% of students getting A, B, C, and such. Thus, the ability to do well in this course is not dependent on others doing poorly. Grade cut-offs will never be shifted up, but may be shifted down depending on the final overall grade distribution. There is NO rounding of your course grade.

Name	Range	
A+	100%	to 97%
A	< 97%	to 93%
A-	< 93%	to 90%
B+	< 90%	to 87%
B	< 87%	to 83%
B-	< 83%	to 80%
C+	< 80%	to 77%
C	< 77%	to 73%
C-	< 73%	to 70%
D	< 70%	to 60%
F	< 60%	to 0%

ASSESSMENT PHILOSOPHY:

As educators in this course, our primary goal is to help you develop the mindset of a biologist rather than just memorizing their knowledge. To facilitate this, the course is designed around the learning goals outlined earlier in the syllabus. Assessment is a crucial component of this process, encompassing all tasks for which you receive feedback or grades. This enables both you and the instructional team to monitor your progress towards mastering the skills embedded in this course.

While the grading guide's five assessment categories may appear overwhelming, each is essential for evaluating your growth as a responsible, creative, and productive scientist. Exams alone cannot adequately achieve this objective. Adopting a more holistic approach to feedback and grading provides a better understanding of your strengths and areas for improvement.

To help you stay organized, we recommend establishing an intentional and user-friendly system to keep track of your goals and tasks. A calendar app is an excellent starting point, ensuring that each deliverable for every class is scheduled and regularly reviewed. For notes, thoughts, and other materials, you can explore various options such as paper and pen, Apple Notes, Notion, Evernote, etc. This class will support your organization with a schedule and grading guide in the syllabus, as well as weekly announcements and module pages listing all upcoming deliverables.

Inevitably, life events can interfere with your ability to attend class or submit assignments on time. Balancing these challenges with a fair grading policy is a complex task. Here are two guiding principles that underpin our approach:

1. Life happens, and your privacy matters. Illness, family emergencies, or other unforeseen events might prevent you from completing assessments on time, and you should not be obligated to share these personal matters to your instructor or instructional assistants.
2. Grading policies have both advantages and disadvantages. While accepting late assignments could benefit many students, there are costs involved. Instructional assistants, who are often busy students themselves, need to manage their grading schedules effectively. Additionally, accepting late work after answer keys are posted is problematic. To balance these concerns, we will either drop a certain number of assignments for all students or adjust the weighting of missed assignments/exams. This approach accommodates everyone, particularly those uncomfortable discussing their reasons for late or missed submissions.

While grades may currently be a primary focus, it's crucial to remember that once you embark on your chosen career or academic path, your skills, knowledge, motivation, and wisdom will take precedence. Focus on cultivating these attributes in each of your classes, ultimately building a solid foundation of knowledge and expertise. Prioritizing genuine understanding over letter grades is like ascending a solid mountain instead of a sand dune - your efforts yield meaningful progress, leaving you invigorated and closer to your goals, rather than drained and no further ahead.

SUPPLEMENTAL INSTRUCTION (SI):

REGRADES:

If a grading error has been made, you should submit a regrade request to Dr. Keefe using the regrade request form available on Canvas.

LETTERS OF RECOMMENDATION:

If you think you may want me to write you a letter of recommendation (or any other instructor), please consider what a good letter would contain and how your actions in the course demonstrate the qualities you will want highlighted in a good letter. When students ask me for a letter of recommendation, I ask them to write to me about how they demonstrated critical thinking, leadership, collaboration, and professionalism. I will be specifically looking for examples of these qualities *that I could have noticed* during lab/lecture and office hours. Be sure to actively participate in the discussions, talk to me during the lab/lecture and my office hours: ask questions, offer your own ideas and interpretations of your results, bring interesting facts/papers that are connected to the material we are studying. If you don't actively show the qualities that are needed to write a good letter, it will be hard for me to write a letter that is meaningful and useful.

Therefore, in order to ensure I am able to write substantive, insightful, and informative letters, I am only able to potentially write letters for students who fit the following criteria:

- If you are applying for an undergraduate grant/job/program:
    - You must have received at least a "B-" grade in one of my courses or be actively enrolled and passing one of my courses.
    - You must have met with me more than once outside of class (e.g. office hours/Coffee with a Prof) OR the letter is more than 2 months from being due and we can schedule at least one significant meeting.
- If you are applying for a post-graduate program (e.g. med school, post-bacc program)
    - You must satisfy ONE of the following criteria:
        - You received an "A-" or higher in one course.
        - You took more than one class with me and demonstrated clear improvement.
        - You worked with me as an Instructional Assistant or in some other professional capacity.
    - AND you must ALSO satisfy ONE of the following criteria:

- ■ We have met and talked multiple times in a way where I was reasonably able to assess your potential for your applied program. Examples include office hours, IA meetings, or Coffee-with-a-prof.
- ■ The due date for the letter is greater than one academic quarter away and you commit to meeting with me at least once to have a formal conversation.

ACADEMIC INTEGRITY:

https://students.ucsd.edu/academics/academic-integrity/index.html

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Academic misconduct is broadly defined as any prohibited and dishonest means to receive course credit, a higher grade, or avoid a lower grade. Academic misconduct misrepresents your knowledge and abilities, which undermines the instructor's ability to determine how well you're doing in the course. Please do not risk your future by cheating.

Students suspected of AI violations on exams will be invited to Zoom follow-up meetings where they will be asked to (in real time, on video) justify their answers (before the graded exams or solutions are released). If the instructor isn't convinced during the meeting, or the student refuses to participate, they're submitted for AI violations.

Integrity of scholarship is essential for an academic community. The University expects that both students and faculty will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual(s) to whom it is assigned, without unauthorized aid of any kind. In this course, we need to establish a set of shared values. Following are values* adopted from the International Center for Academic Integrity, which serve as the foundation for academic integrity.

	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 ● Show up to class on time and be mentally and physically present ● Participate fully and contribute to team learning and activities	● Give you timely feedback on your assignments and exams ● Show up to class on time and be mentally and physically present ● Create relevant assessments and class activities

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 equally
Trustworthiness	• Not engage in personal affairs while on class time • 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

* This class statement of values is adapted with permission from Tricia Bertram Gallant Ph.D.

CAMPUS POLICIES:

- [UC San Diego Principles of Community](#)
- [UC San Diego Policy on Integrity of Scholarship](#)
- [Religious Accommodation](#)
- [Nondiscrimination and Harassment](#)
- [UC San Diego Student Conduct Code](#)

Diversity and equity statement
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. If you have any concerns related to diversity and equity in the course, please contact the instructor.

If you find yourself in an uncomfortable situation, ask for help. The university is committed to upholding policies regarding nondiscrimination, sexual violence, and sexual harassment.

STUDENT RESOURCES:

Learning and Academic Support	
Ask a Librarian: Library Support *Chat or make an appointment with a librarian to focus on your research needs* **Course Reserves, Connecting from Off-Campus and Research Support** *Find supplemental course materials* **First Gen Student Success Coaching Program** *Peer mentor program that provides students with information, resources, and support in meeting their goals* **Office of Academic Support & Instructional Services (OASIS)** *Intellectual and personal development support*	**Writing Hub Services in the Teaching + Learning Commons** *One-on-one online writing tutoring and workshops on key writing topics* **Supplemental Instruction** *Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses* **Tutoring – Content** *Drop-in and online tutoring through the Academic Achievement Hub* **Tutoring – Learning Strategies** *Address learning challenges with a metacognitive approach*
Support for Well-being and Inclusion	
Basic Needs at UCSD *Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live is encouraged to contact:* foodpantry@.ucsd.edu | basicneeds@ucsd.edu *| (858) 246-2632* **Counseling and Psychological Services** *Confidential counseling and consultations for psychiatric service and mental health programming*	**Community and Resource Centers** **Office of Equity, Diversity, and Inclusion** *As part of the Office of Equity, Diversity, and Inclusion the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus* *(858).822-.3542 |* diversity@ucsd.edu **Get Involved** *Student organizations, clubs, service opportunities, and many other ways to connect with others on campus* **Undocumented Student Services** *Programs and services are designed to help students overcome obstacles that arise from*

| Triton Concern Line
Report students of concern: (858) 246-1111

Office for Students with Disabilities (OSD)

Supports students with disabilities and accessibility across campus | *their immigration status and support them through personal and academic excellence* |

PRIVACY PRACTICES

(From https://cio.ucop.edu/privacy-tips-for-your-syllabus/)
This course is a community built on trust; as a learning community, we are collectively responsible for upholding privacy protections. In order to create a community built on trust and the most effective learning experience, our interactions, discussions, and course activities must remain private and free from external intrusion. We have obligations to each other to preserve privacy and cultivate fearless inquiry. We respect the individual dignity of all and will refrain from actions that diminish others' ability to learn.

As your instructor, I am committed to protecting your privacy by only using university-approved course technologies and adhering to the Family Educational Rights and Privacy Act
(FERPA) https://catalog.ucsd.edu/about/policies/notification-of-rights/index.html and Campus Privacy Office guidelines. This includes using your educational data only as allowed by FERPA, for example, for legitimate educational purposes such as submitting your final grades to the registrar's office.

SUBJECT TO CHANGE POLICY

Due to unforeseen circumstances, minor aspects of this syllabus may change. This includes changes to scheduling, grading values, and policy. It is the responsibility of the instructor and instructional assistants to announce changes with reasonable notice in multiple formats (e.g. lecture and Canvas announcements, email, etc.). It is the responsibility of the student to make note of these changes and communicate with the instructor if you have questions or concerns about the changes.