

# BIO 11S: Microbiology & Infectious Disease

## Summer 2023

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### **About our course:**

This course covers the fundamentals of microbiology and encompasses the tiny world of microbes (bacteria, archaea, fungi, viruses, and more) and how they impact human health and society. In exploring microbiology, we will take a multi-disciplinary approach combining molecular genetics (how gene expression is regulated in both prokaryotes and eukaryotes), biochemistry, and immunology. We will also explore key advances in biotechnology that have been made possible through our discovery of microbes and how they work including cloning, PCR, and CRISPR. This course will offer a laboratory component to allow students hands-on experience observing and working with bacteria and small eukaryotes.

In order to fully explore and appreciate microbiology, you will also learn fundamental concepts in biochemistry, physiology, cell biology, ecology and evolution. We will explore how microbes can both harm humans through infectious disease as well as how humans thrive with the support and new technologies derived from microbes. We, humans, are giants living in a microbe's world and I'm eager for you all to have a chance to explore this topic with me.

### **What you will learn (student learning objectives):**

By the end of our course, you will be able to:

- Compare and contrast the role of normal flora, opportunistic and obligate pathogens in both health and disease states
- Distinguish between bacterial, viral, and eukaryotic pathogens in terms of structure and chemotherapeutic interventions
- Use the scientific method to form a hypothesis and design a microbial control experiment to test that hypothesis
- Read scientific literature and assess and synthesize the conclusions based on data (evidence) provided by the authors
- Perform standard microbial culturing, aseptic transfers/handling, and selective/differential tests to identify bacteria.

### **What you will need for lecture:**

- Note-taking materials (pens, pencils, paper/notebook or digital device such as laptops and iPads)
  - Reliable access to digital device with internet outside of class to access Canvas materials regularly
  - No textbook is required, but if you like textbooks: [OpenStax Microbiology](#) is a free, online textbook that will cover much of the biological concepts. I will provide electronic resources (Khan Academy, YouTube videos, etc.) that are free to access.
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## Course Calendar

WEEK	DATES	TOPICS	LAB EXERCISES
1	June 27	Introduction Lab safety Scientific Method Discussion	<u>INTRODUCTION TO MICROBIOLOGY LAB</u> <u>Exp. 1:</u> Ubiquity of Microbes & Experimental design
	June 29	Intro to Prokaryotes	<u>ASEPTIC TECHNIQUE AND CULTURE CHARACTERISTICS</u> <u>Exp. 2:</u> Colony Morphology Instructor Demo: Aseptic Transfers <u>Exp. 3:</u> Streak plate for isolation
2	July 4	<b>Independence Day: No Classes</b>	
	July 6	Intro to the Light Microscope Intro to Eukaryotic Microbes	<u>INTRODUCTION TO MICROSCOPY</u> <u>Exp. 4:</u> Examination of Eukaryotic Microbes in Pond Water (TBD)
3	July 11	Bacterial Structure	<u>INTRO TO STAINING &amp; BACTERIAL CELL MORPHOLOGY</u> <u>Exp. 5</u> Simple Stain <u>Exp. 6</u> Negative Stain <u>DIFFERENTIAL STAINING/ CELL WALL CHARACTERISTICS</u> <u>Exp. 7</u> Gram stain
	July 13	Microbial metabolism and growth  Discussion: Microbes, Food products, and humans	<u>MICROBIAL METABOLISM:</u> Fermentation day!
4	July 18	Pathogenic Cocci & Enterics: Human Health	<u>PATHOGENIC COCCI AND ENTERIC BACTERIA</u> INOCULATION AND THEORY <u>Exp. 8:</u> Gram Stain of organisms Differential media
	July 20	No mini-lectures today	<u>EXP. 9: PATHOGENIC COCCI RESULTS</u> PEA Media Bile Esculin Test Mannitol Salt Agar Blood Agar Coagulase test Catalase test  <u>EXP. 10: ENTERIC BACTERIA RESULTS</u> EMB Agar Phenol Red Broth (Fermentation Tests) Citrate Test LM (Nutrient Utilization Tests) SIM Medium (Combination Differential Media)  <u>PATHOGENIC &amp; ENTERIC BACTERIA</u> Dichotomous Key  <u>UNKNOWN IDENTIFICATION: Streak Plate</u>
5	July 25	Selective Toxicity and chemotherapeutic interventions	<u>MICROBIAL CONTROL LAB</u> <u>Exp. 11:</u> Kirby Baur Disc Diffusion Tests <u>UNKNOWN ID:</u> Streak Plate Results, Slant from Isolation, Gram stain
	July 27	Viruses	<u>VIRUSES</u> <u>HIV EVOLUTION DEMO</u>

		Evolution: The trouble with antibiotic resistance	<u>DISCUSSION OF ORIGINS: HIV, FLU, SARS-CoV-2</u> <u>UNKNOWN ID: ASK FOR TESTS</u>
6	Aug 1	Harnessing the power of microbes: Biotech I	<u>CRISPR-CAS 9</u> <u>Exp. 12: Transformation</u> <u>UNKNOWN ID: ASK FOR TESTS</u>
	Aug 3	Discussion: CRISPR limitations and ethics	<u>CRISPR-CAS 9</u> Exp. 13: Spotting assay  <u>UNKNOWN ID: ASK FOR TESTS</u>
7	Aug 8	Disease spread: Epidemiology	<u>CRISPR-CAS9: RESULTS</u>  <u>EPIDEMIOLOGY &amp; INFECTIOUS DISEASES</u> CONTAGION DEMO
	Aug 10	The Immune System: Innate & Adaptive	<u>INNATE IMMUNITY</u> <u>Exp. 14: Lysozyme &amp; Tears</u>
8	Aug 15	Harnessing the power of immunity: Biotech II	Lysozyme & Tears Results <u>ADAPTIVE IMMUNITY</u> Exp. 15: ELISA
	Aug 17		<u>Group Project: adaptive immunity proposals (investigating immunity)</u>

***NOTE: COURSE CALENDAR IS TENTATIVE AND SUBJECT TO CHANGE.***

### What's in this syllabus?

- **About me (Dr. Y)**
  - **Assignments & assessments**
  - **How grades are determined**
  - **My expectations of students**
  - **Inclusion in the Classroom**
  - **Policies**
    - **Attendance**
    - **Late assignments**
    - **Withdrawal**
    - **Academic integrity**
    - **Accommodations**
    - **Student feedback**
  - **Communication**
  - **Resources**
  - **Important college dates**
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## About me (Dr. Y):



I grew up in Phoenix, AZ and am first-generation Japanese-American and the first in my family to go to college. I earned my B.S. and M.S. from the University of Arizona in Cell and Molecular Biology. At the U of A, I conducted research and my dissertation in Daniela Zarnescu's lab studying amyotrophic lateral sclerosis (ALS) using fruit flies as a model system. I then continued to study ALS at Stanford University in Aaron Gitler's lab where I earned my Ph.D.

In my free time, I love to garden, cook and bake, and am passionate about food. I also enjoy hiking, embroidery, video games with my husband, and spending lots of quality time with my dog, Audrina. I am a relatively new mom and my baby, Remi, will be turning one very soon!

At Foothill College, I teach the Anatomy and Physiology series and Microbiology Lab and Lecture. I have taught first year liberal arts classes at Stanford including Our Genome (THINK68), Living with Viruses (THINK61), and The Cancer Problem (THINK23). In the Biology department at Stanford, I have taught Problem Solving with Infectious Diseases, Biochemistry, Genetics, and the introductory biology lab series.

## What can you expect from me?

In my courses, I bring my scientific training in cell and molecular biology, neurobiology, and genetics to inform and enrich our class. I aim to create an environment where students feel comfortable asking questions, voicing confusion, and actively participating in lecture and lab.

I am here to guide and facilitate your learning and will challenge you to actively engage in the learning process through class activities and discussions, assignments, and more. More specifically:

- I strive for an inclusive and collaborative classroom.
- I will clearly state learning goals, expectations and due dates for each activity and lesson.
- I will provide feedback on assignments and projects in a timely manner and communicate clearly if there is a delay.
- I will try to respond to emails and questions within 48 hours on weekdays and 72 hours on weekends.
- I will do my best to give you the tools, feedback, and support to succeed, and will be willing to listen to how else I can support you.

It is my intent that students from all diverse backgrounds, perspectives, and situations be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity, which may include but not limited to: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, religion, political affiliation, culture, and so on. I acknowledge that there is likely to be a diversity of access to resources among students and plan to support all of you as best as I can. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

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## What assignments and assessments can you expect?

Bio11S is an intense, interactive exploration of microbiology that requires a considerable investment of time (expect to spend upwards of 10 hours per week OUTSIDE of class dedicated to completing pre and post-class assignments and studying) and active participation in class including lab (~6 hours per week). This class is designed to give you a strong fundamental understanding of biochemical and cellular structures, functions, metabolism, genetics, pathogenesis and immunology. Please see the 5 different categories below:

### 1. What is a Pre-Class Assignments?

Pre-Class Assignments involve you watching pre-recorded lectures, assigned YouTube videos, or reading text. Because we have a limited time for lecturing in lab (since you'll be doing experiments), you will get the majority of the lecture portion during these Pre-Class Assignments. The positive aspect is that you may pause the recordings as needed and take notes at your own pace. Then, you will answer quiz questions to check your understanding. The goal of the quiz is to make sure you can self-check how well you've learned the foundational vocabulary or concepts before coming to lab.

During our lab, I will incorporate some mini-lectures. During this time, we may review the Pre-Class material and then move on to more complex concepts. In other words, in class you are expected to be an active participant. You should be ready to ask for clarification, participate in activities and discussion, summarize concepts from the pre-class assignments, explain processes to your peers, and apply what you've learned. To do all of that during our class time, it's super important that you have explored the subject matter before class. You should plan on coming to office hours or ask questions during lab to clarify concepts as needed throughout the quarter.

For Pre-Class activities:

- Pre-Class quizzes are graded for an *effort-based, timely completion*. In other words, scoring 80% or higher by the deadline will be given full credit
- you have an unlimited amount of time and are encouraged to re-watch or go back to the text to check your understanding
  - remember the goal is to focus on learning/understanding. The questions are meant to help you determine which parts you understand and which parts you need to clarify
- you may work with classmates to submit the Pre-Class activity
- you should note what is still confusing or what you have questions on and bring these to class
- you have **unlimited attempts** at each Pre-Class quiz (note not all activities will be quiz-based. If an alternate activity is assigned, you are graded on effort-based, completion).
- answers will be released on Tuesdays, you are highly encouraged to review any questions you missed even if you score 80% or higher for credit

### 2. Lab Notebooks

You will be given a notebook on the first day of lab. For each lab period, you should be taking notes on the procedures and data you are collecting. In addition, you may be asked to complete in-class activities in your lab notebook. Please do not lose your lab notebook as this has your precious data (and participation points)!

You will earn participation for each class by:

- Showing up to class ready to start on time
- Completing the in-class activities and exercises

- Activities include:
  - Analyzing data from primary literature as a group
  - Designing theoretical experiments and predicting results
  - Reflecting on in-class discussions on human health, ethical implications of experimentation, etc.
- Before you leave each day, a TA will give you a stamp to confirm your active participation in lab that day.

Please note that you must be in class to receive participation/attendance points. I will excuse COVID and other medical emergencies so please reach out to me as soon as possible. You are expected to learn the material on your own, working with classmates, and coming to office hours if you miss a class whether it is excused or unexcused.

### 3. Lab Reports (Post-Lab Assignment)

After each lab experiment (or set of related experiments), you will be asked to submit an assignment on Canvas (e.g. Quiz, report, etc.) which will demonstrate your understanding of the purpose and procedures, ability to collect and interpret relevant data and summarize its impact on your understanding of microbiology, and to critically think about the experiments. When there is enough time, you are encouraged to finish this during lab.

### 4. Assessments

There will be no exams in this course. Exams have traditionally benefitted a small group of students and continue to further marginalize and exclude certain groups from the sciences. Moreover, exams have been illustrated to marginally reflect long-term learning or understanding of key concepts.

There will be a few group “projects” in our class to bring key ideas and skills together:

- Microbial fermentation day: during lab, your group will put together an informal poster on one key microbe involved in the fermentation of one of your favorite fermented products.
- One will be to identify an unknown microbe using a series of differential tests. You will submit a written report, summarizing your findings and information about how the microbe relates to human health.
- The other project will be to create a proposal for a group experiment. More details will be announced in class, but will involve creating a hypothesis, and experiment to test that hypothesis. Your group should identify the independent, dependent, and standardized variables. As a group, you will collect data and put together a poster to summarize your findings. We will have a short poster session during the last day of class where you present your proposal to your classmates and receive feedback on your experimental setup and conclusions.

### 5. Mastery Assessments

All the components listed above, if completed on time and of quality, will earn you an A- in our course. Throughout the quarter there will be 4 extra assessments that **are optional**. Quality completion of the Mastery Assessments will allow you to earn an A or A+ in our course. These assignments will vary (handouts, Canvas quiz-based assignments, etc.). Quality completion of 2 of these will earn you an A, while all 4 will earn you an A+. These are designed to be challenging and help those who want to go above and beyond to grapple with the concepts and deepen their learning.

**How will your grade be determined in this class?**

To encourage deep-learning and focus on concepts rather than percentages or points, this course will be using **labor-based contract grading**.

With this scheme, each specified item in the course will count equally toward fulfilling the requirements of the class according to the grading contract below. Completing each item means a timely, complete, and quality submission that fully follows the assignment instructions. All assignments will be completed online so please refer to Canvas for the specific due date of each assignment. The following table summarizes our assignments:

[table will be finalized 1 week prior to the start of class]

Please note that there are no exams in this course. Instead, all assessments are designed to promote learning through actively engaging with the course concepts. This grading process is based on research that suggests that students who commit to the course as a process experience greater learning. To maximize your learning, we ask that you commit fully to the grading contract and complete high-quality work consistently throughout the course.

If you complete at least 90% of all items at a satisfactory level, you will earn an A- in this course. The following table shows what grade you will earn based on how many grading items you complete for this course.

[table will be finalized 1 week prior to the start of class]

As mentioned previously, in order to receive an A or A+ designation in this course, Mastery Assessments must also be submitted. The following table shows what grade you will earn based on additional Mastery Assessments submitted.

[table will be finalized 1 week prior to the start of class]

### **Failing Grades:**

Please know that we DO want you to succeed in this course. Therefore, if at any time during the quarter you receive a no credit score on an assignment or assessment, you should talk with Dr. Y or a TA. In most cases, you will be able to resubmit to receive credit. During our chat we will try to discover what went wrong (e.g. which concept was unclear or what part of the assignment instructions were missed) and what we can do to help you improve your resubmission.

### **Late Assignments:**

The dates on the schedule are projections only. It is the student's responsibility to be in class and on time to hear announcements of due dates and schedule changes. Because this is a lab class, sometimes experiments need to be adjusted and dates may shift.

Due to our contract-based system, late assignments will generally not be accepted. Please coordinate an extension or reach out about circumstances such as health/well-being that will interfere with deadlines. **If you need to coordinate an extension for an assignment, please do so ahead of the deadline via email. I will accommodate extensions requested in advance. You should email Bikal Sharma for extension requests.** Please take this as practice at building time management and communication skills that will set you up for success in the future.

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## What do I expect from you?

True learning and development are active processes that takes practice and engagement. I expect you to take an active role in your learning by coming to our class meetings prepared and ready to collaborate with your classmates. Keep in mind that each member of this class has different ideas, biology backgrounds, and perspectives that will enrich the experience for us all. I expect all of us to speak and listen with compassion and not make assumptions about others. Never hesitate to email me, join me in my office hours, or set up a meeting. This class should challenge you, but I believe everyone can succeed with effort and engagement.

In this course, following the guidelines below will help you achieve this goal by growing as a learner, discussant, writer, researcher, reviser, and presenter.

- *Arrive* to every class on time—which means seated and ready to begin class by the start time.
- *Approach* the course with the habits of mind critical for success at the university level: intellectual curiosity, openness to new ideas, critical engagement, and creativity.
- *Prepare* by doing all assigned readings and assignments before each class. Have copies of texts, relevant materials, and notes you took with you to guide you during our classes.
- *Listen* actively and with respect to all discussants. We listen to each other with dignity by thoughtfully grappling with the ideas of others and using non-verbal cues to show we are paying attention to them. Active listening is essential for productive open discourse and respectful participation.
- *Speak* up and challenge yourself to share your thoughts, questions, and ideas with your classmates in skillful and respectful ways. Being critical of your peers is essential for proper academic discourse, but we strive to do so respectfully. Since you are thinking on your feet, you are not expected to speak with perfect clarity. Class discussion is a cooperative enterprise, not a competition. A quality contribution is one that helps stimulate our learning. A thoughtful response to another student's comment leads to a much richer learning experience than a long and well-researched but disconnected comment.
- *Inquire* by asking questions—this is a key aspect of learning. Don't take what you read or hear for granted. Ask yourself questions as you read and listen. Engage with your peers by asking questions. Often there is not a single "right" or clear answer.
- *Complete course requirements each week*—This includes lecture assignments, lab preparation, lab reports, and attending lecture and lab sections. Please refer to the lecture and lab sections for more details on each of these components.

## Class Charter

Early in the course we will collaborate to develop a charter for our class. In this document we will establish norms, etiquette, and best practices to make our classes together as smooth and productive as possible. We will hold each other accountable for abiding by the guidelines we establish, particularly regarding **equity, inclusion, and mutual respect**. Let's take the opportunity to create a class culture that works for us! Your input is essential.

## Inclusion in the Classroom

Microbiology is one of many STEM fields that has not yet achieved equitable representation and participation for individuals with diverse identities – this is important to recognize. I will do my best to promote inclusion and equity in student participation, and to provide the support needed for students



to meet their educational goals. I expect the students in my classroom to hold me accountable as I will hold each of my students accountable as we learn to respect one another's boundaries.

Demonstrating respect can look different to different people. As a concrete baseline, here some **ground rules** for the classroom:

- Refer to your peers by their chosen names and pronouns.
- Remember to “take space, make space—” speak up for yourself as needed, but be mindful of others. Make room to hear those who have not had a chance to contribute.
- Work on your ability to listen and avoid interruptions
- Consider your own assumptions and try not to over-generalize your experience
- If you say something that does not land well with others, own what you said. Consider that the impact on the listener may differ from your intent.
- If someone says something that does not land well with you, speak up and do your best to articulate your perspective.
- Try to forgive yourself and others for making mistakes. We are thinking on the fly!
- Be compassionate and supportive of your peers. Everyone has moments when they struggle and moments when they shine.

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## **Class Policies**

**Attendance:** Attendance and participation is required and you are expected to arrive on time and prepared for class.

- During the first week of the course, failure to attend any class meeting time will result in the student being dropped from the course.
- After Week 1, two or more unexcused absences may result in the student being dropped from the course (if before the drop deadline) or failing the course (if after the drop deadline).

**Late Assignments:** The dates on the schedule are projections only. It is the student's responsibility to be in class and on time to hear announcements of due dates and schedule changes.

- For Pre-Class activities, late assignments will not be accepted.
- For post-class assignments, late assignments will be accepted, but with a penalty.
- Your grade for the assignment will decrease by 10% each class day that it is late. If you need to coordinate an extension for an assignment, please do so ahead of the deadline via email. I will accommodate extensions requested in advance.

**Withdrawal from the Course:** While I do not like to see any of my students withdraw from the course, I do realize that legitimate reasons for not completing the course do arise throughout the quarter. The last day to drop from this course without a W appearing on your transcript is July 7<sup>th</sup> (final study list deadline). In all cases, the College requires all withdrawals be filed no later than August 4<sup>th</sup>. After this date, according to policy, if you do not complete the course you will receive a letter grade on your record. **It is the student's responsibility to file for a W.**

**Academic Integrity:** Academic dishonesty consists of copying from someone else, copying from the internet, handing in reports that do not represent your own work, or using notes on an exam. Additionally, enabling cheating by allowing another student to copy or submit your work as their own, altering graded work after it has been returned and re-submitting, or impersonating another student are all violations of the academic integrity policies of the class and the college. Any student turning in an assignment overly similar to that of another student or another author, or found committing academic dishonesty of any other type will receive a zero for the assignment, and a report of the incident filed with the appropriate college authorities.

- Additional note regarding AI such as ChatGPT:
  - AI may be used to help supplement your studying or understanding of course content. For example, requesting ChatGPT to summarize or provide a list of important recent scientific papers on the ethics of CRISPR use is appropriate in this classroom. AI can even do fun and useful things like make “notecards” for you if you like to quiz yourself on new terms we learn in class. However, asking AI to write a proposal, create hypotheses, or asking it to find the answer to critical thinking questions from assignments is not appropriate in our classroom. Thinking for yourself, formulating your own ideas, hypotheses, experiments, etc. are critical thinking skills we have identified as your learning goals and therefore should not be left to AI to do the work for you. If you have any concerns or questions regarding the appropriate use of AI in our classroom, feel free to reach out to Dr. Y
  - Be wary of the content and material AI generates for you. Dr. Y recently for fun found out that Quora has an AI bot that can “find answers” for you, but upon asking it a simple question about the capacitance differences between veins and arteries, Dr. Y found that the bot answer contained a mix of correct and completely inaccurate info! Just like in humans, it’s best to stay wary of entities that cannot properly cite themselves 😊

**Disabilities and learning differences:** I will gladly accommodate students with physical or learning disabilities or differences. If you have such a disability and are registered with Disability Resource Center (DRC), please contact me as early in the quarter as possible. Qualified students with physical or documented learning disabilities have the right to free accommodations to ensure equal access to educational opportunities at Stanford.

**Student Feedback:** I love to hear from you about the success or failure of any aspect of this course. Please provide your criticisms, praise or suggestions via my mailbox, office hours, e-mail or anonymous note.

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### **How will we communicate?**

Communication in our class will happen in the following ways:

- Each week, the next week's module will open with steps to get you prepared for class. Please always go through the module elements in order.
  - Modules will include important information, assignments, slides, etc.
- Communicating with Dr. Y:
  - You can speak to me before or after class when I have finished setting up or packing up.
  - Each week, you can come to Dr. Y's office hours listed on the home page of Canvas. I'd love to get to know each of you, and you can stop by anytime during my hours!

- I encourage you to email me for questions pertaining to content or clarifications about assignments.
  - You can reach me via email at [sby@stanford.edu](mailto:sby@stanford.edu) Please include "BIOL11" in the Subject line. Please address me as "Dr. Y" or "Professor Y."
- I will respond within 24-48 hours on weekdays, or the following weekday if your email is sent on a holiday and 48-72 hours on weekends
- I always appreciate when students acknowledge they have received my email/response (you can do this with a quick thank you reply or by "liking" the email on outlook).
- Please be sure to turn on email notifications for Announcements OR regularly check Announcements each time you sign onto Canvas. We will regularly post announcements for lecture or lab so it is very important to check so you don't miss an important note!
- Communicating with TA's:
  - TA office hours and contact info will be posted on our Canvas home page
    - Gentle note: Please be conscientious and respectful with the volume of emails and time you give your TA to respond. They also have a very busy workload outside of their TAship. You should not expect your TA to be able to answer last minute questions before an assignment is due. Therefore, it's important to get started on your assignments early and give yourself enough time to get help if needed.
  - Extension requests or Canvas issues should be sent to Bikal Sharma

### When can I expect grades or feedback on assignments?

- Quizzes: multiple choice answers will be auto-graded so your feedback will be immediate. Answer will be released on Tuesdays. Short answers will be graded by the end of the week.
- Post-Lab assignments (Lab reports or activities) will be returned to you within 1 week
- Lab Assessments: You will receive scores and feedback in about 1 week

### Where can I find my grades?

You can check your assignments for completed/incomplete designations can be found in the "Gradebook" on Canvas. However, your final grade is calculated based on our contract and therefore your final grade will not show up on Canvas. You may check-in with your TA, Bikal, or Dr.Y regarding your current standing in the course; but also know that it should be clear based off the grading scheme.

Finally, if you turn on email notifications for grade or comment updates in your account settings, you can receive a note as soon as your grade is posted.

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### Important dates for Summer Quarter at Stanford:

First day of quarter; instruction begins	June 26, 2023 (Mon)
Preliminary Study List deadline.	June 26, 2023 (Mon, 5 p.m. PDT)
USA Independence Day celebrated (holiday, no classes).	July 4, 2023 (Tue)
Final Study List deadline. Final day to add or drop a class; no drops are permitted after this point.	July 7, 2023 (Fri, 5 p.m. PDT)
Term withdrawal deadline	July 28, 2023 (Fri, 5 p.m. PDT)
Change of grading basis deadline.	August 4, 2023 (Fri, 5 p.m. PDT)
Course withdrawal deadline. Students who withdraw from a course prior to this deadline receive a 'W' notation on the transcript. Students who withdraw after this date will receive a grade for the course.	August 4, 2023 (Fri, 5 p.m. PDT)
End-Quarter Period.	August 12–17, 2023 (Sat–Thu)
Last day of classes.	August 17, 2023 (Thu)

Last opportunity to arrange Incomplete in a course, at last class.  
End-Quarter Examinations  
Grades due. Grades will be posted in Axess after this date.

August 17, 2023 (Thu)  
August 18–19, 2023 (Fri & Sat)  
August 29, 2023 (Tue, 11:59 p.m.)