UC San Diego

Welcome to BICD 100 - Genetics!

Course Information

Course Description	This course aims to explore concepts of genetics as they apply to how information is stored, utilized, and inherited in life. Fundamental concepts include gene and chromosome structure, phenotype, chromosome segregation and recombination, gene expression, random mutation, and natural selection. We will learn these concepts by studying their roles in biological systems and will apply our understanding of these concepts to explain and predict a wide range of biological and real-life phenomena including human health, biodiversity, and agriculture.
Credits	4 credits, approximately 24 hours per week (summer schedule) which includes pre-class work, lecture, post-class assignments/practice and discussion section.
Instructor	Dr. Lisa McDonnell, lmcdonnell@ucsd.edu https://biology.ucsd.edu/research/faculty/lmcdonnell.html I will only send communication via my UCSD email address or Canvas. I do my best to reply within 24 hours, but am less likely to reply over the weekend. I love genetics and look forward to discussing ideas and questions with you! #FIRSTGEN
Instructional Assistants (IAs)	Anne Marie Berry, amberry@ucsd.edu Yujin Sung, ysung@ucsd.edu

BROAD LEARNING GOALS

- **Collaborate** with fellow students and the teaching team to learn concepts in genetics
- **Apply knowledge** of genetics concepts to analyze & explain data, make predictions, solve problems, and **construct scientific arguments** based on evidence and reasoning

More detailed learning objectives will be provided in each class.

Course Schedule & Format

Course schedule (also please check Canvas on a regular basis)
https://docs.google.com/spreadsheets/d/1snZMzJ4zBBJFAgsRkPXyK-iSB3heWbrY82UmZQIAyJ4/edit?usp=sharing

This is a remote course. There are a combination of asynchronous (online but not live) and synchronous (online and live) components.

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Asynchronous Video Lectures:

UC San Diego's Learning Management System: https://canvas.ucsd.edu
Login: UC San Diego Active Directory credentials

Additional asynchronous activities

1. **Online Preparation and study tool: Codon Learning**
Information on how to use Codon Learning will be provided on our Canvas site.
2. **Homework problem sets**
Will be posted on Canvas, and students are asked to upload their completed work on Canvas.

Synchronous Course Elements

1. <u>**Office hours.**</u> **Zoom links on Canvas. Most Mondays and Wednesdays, 9:30am-11am.** See course schedule for all dates and times.

2. <u>**Discussion sections.**</u> **Zoom links on Canvas.**
Tuesdays & Thursdays 11am-11:50am, 2:00pm-2:50pm, 3:00pm-3:50pm.
Attend one section *each* Tuesday *and* Thursday. Attend any section.

3. <u>**Tests #1, #2, and #3 (Final Exam)**</u>
Testes are released on Canvas and will be available during these dates and times:
Test #1, Wed July 6, 9am-11am
Test #2, Wed July 20, 9am-11am
Final Exam, Friday July 29, 8am-11am

During tests, I will be available on Zoom where you can ask questions. Zoom link will be on Canvas.

You must complete the tests during the above noted dates and times. There will be no shifting of test times because of other scheduling issues.

Recommended Module Workflow (two class modules per week):

1. **Pre-class reading (optional)**
These readings are a way to engage with some of the basic concepts related to the learning objectives for the week. You are not tested on specific items in the reading – this is simply a tool to engage with background-level material.

2. **Codon Learning Pre-Class Quiz ~ 30 minutes to 1 hour**
The pre-class quiz is meant to assess your understanding with the learning objectives for the week at an introductory level. These are graded for correctness, with unlimited attempts. I recommend you try it once, watch the video lectures, and go back and try again.

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3. **Watch video lectures ~ 3 hours (will vary depending on note-taking)**
   Lectures will expand on the learning objectives with examples and problems. I encourage you to pause and work on the problems and questions I pose, as these are opportunities to practice testing your understanding.

4. **Attend office hours to ask questions ~ 1 hour.** During office hours I will also pose a question or two for you to practice.

5. **Do homework problem set ~2 hours**
   These problems are to practice applying your knowledge. Challenge level of these questions is higher than the pre-class work.

6. **Attend discussion section 1 hour**
   Time to review some of the homework problems, and work on a new problem.

7. **Codon Learning Practice for Test Quizzes (Study Path) ~1-2 hours per class.**
   This is a chance to revisit the concepts covered in each class in preparation for the upcoming test. You can access these practice questions after you have completed the pre-class work.

8. **Additional study time ~ 2 hours**

Each week we have two class modules. A 4-unit class is approximately 24 hours per week in the summer session. Please plan your time!

Genetics is largely based on application of knowledge and problem solving. This requires time to think, practice, and seek help! Do not rely on cramming.

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Example calendar for one week

24 hours per week. If you get started on material *before* Monday it will set you up for being able to ask questions before assignments are due.
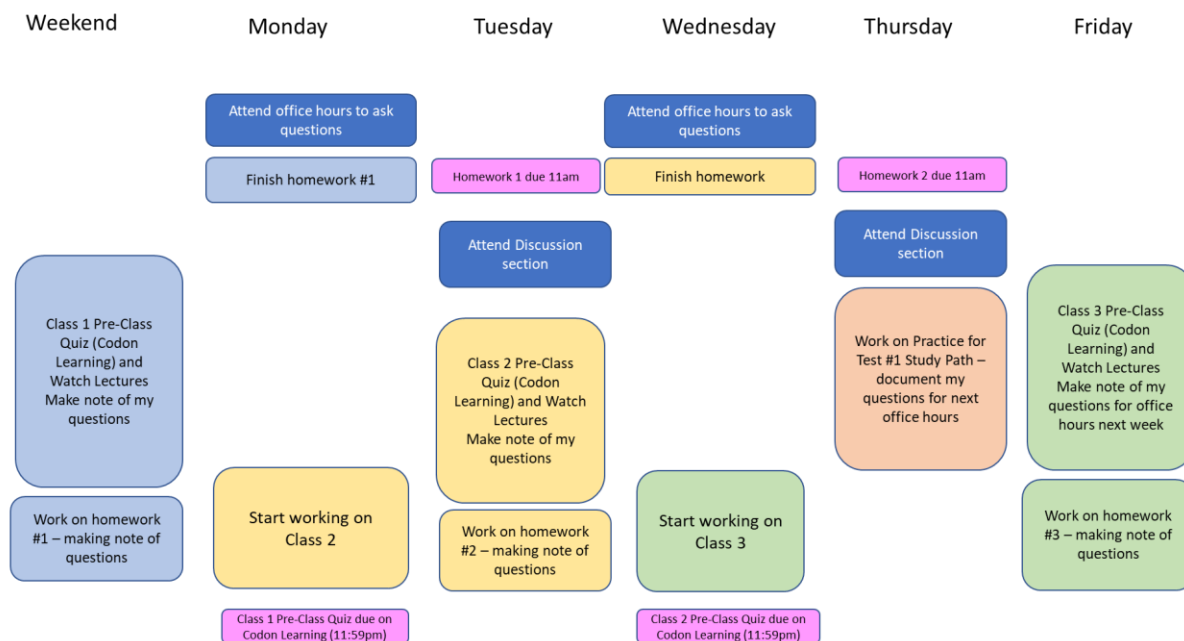
Overall Course Expectations

What you can do to support your success in the course:	What I will do to support your success in the course:
Read the syllabus and stay current with course information	Be prepared and bring my enthusiasm for teaching to each session
Keep up with class material, practice questions, homework	Respond to emails within one working day, answer questions during office hours and provide timely feedback on assignments / submissions.
Contribute to the learning environment with fairness, cooperation, and professionalism	Establish a learning environment with fairness, cooperation and professionalism, and will take action if these principles are violated.
Treat your classmates, instructional assistants and myself honestly and ethically	Treat you honestly and ethically, and will address any concerns you might have
Commit to excel with integrity[1]. Have the courage to act in ways that are honest, fair,	Uphold integrity standards and create an atmosphere that fosters active learning,

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responsible, respectful & trustworthy.	creativity, critical thinking, and honest collaboration.
Manage your time, so you can stay on track with the course and complete tasks on time	Only assign work that is vital to the course, and will work to meet the standard credit hour allotment for the course.
Communicate with me if you determine that a deadline cannot be met due to extenuating circumstances	Consider requests for adjustments and will make reasonable exceptions available to all students when approved

1. Please read UC San Diego's Policy on Integrity of Scholarship and take the integrity pledge!

Course Materials and Tools

Text/Readings
I do not require a textbook for this course. I will provide optional readings that are sourced from free, online material. If you are comfortable with online resources, you can use the ones I recommend throughout the quarter (and/or others you find). If you prefer a textbook, the Klug ("Essentials of Genetics") is recommended, and you can find the relevant topics using the index/table of contents. You may also use older editions of the Klug textbook. Please note that I will not be referring to certain pages/chapters in the Klug textbook.

Codon Learning
We are using Codon Learning to engage in pre- and post-class practice of course concepts. This online platform offers the opportunity to practice and keep track of performance on each learning objective. The cost to use this platform is $20. Instructions on how to sign up will be provided on Canvas.

Assignments and Grading
Bolding indicates flexibility to accommodate for illness/emergencies (elaborated in section below)

Assignment	Points	Due Date	Explanation
Syllabus Quiz	2	June 28, 11:59pm	Review of the syllabus and course components is an important step in understanding the course organization. You will have **two attempts** at this quiz, the highest score accepted.
Pre-Course Review	1	June 28, 11:59pm	This review is on Codon Learning. The objectives, and questions, are meant to review pre-requisite concepts. If you are struggling *please* ask questions during office hours and review the material posted on Canvas under

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			the Pre-Course Review module. You have **two attempts** to receive full points on this review quiz.
Pre-class Quizzes (Codon Learning)	5	Class days, 11:59pm (except test days due next day)	Pre-class quizzes are assigned on Codon Learning. The purpose is to test understanding of core concepts an *introductory* level. Full points for 100% score on the first OR second attempt (and subsequent attempts receive points with 10% deductions per attempt). It is recommended that you try an attempt before watching the lecture videos, and do a second attempt after watching the lecture videos. To accommodate for missed quizzes because of illness and/or emergencies, the **two lowest scores will be dropped**. For this reason, there are no late pre-class quizzes accepted and there are no make-up quizzes.
Homework	8	Tues & Thurs, 11am	Homework questions are typically at a higher difficulty level than pre-class questions. The purpose is to practice applying knowledge of course concepts and to solve problems. You will be asked to upload your completed homework to GradeScope on Canvas. Homework is due at 11am on Tuesdays and Thursdays. Some of the questions on the homework will be scored for correctness, others for completion. Overall, homework will be scored on a three-point scale: 0 (not done or minimal effort), 1 (effort, but incomplete or multiple errors), 2 (complete and thinking is largely on the right track). To accommodate for missed homework because of illness and/or emergencies, the **two lowest homework scores will be dropped**. For this reason, there are no late homework assignments accepted and no make-up homework.
Post-Class Practice (Study Path on Codon Learning)	9	9am July 6, July 29, and 8am July 29.	On the Codon Learning site you will have access to post-class practice questions, in the form of a "Study Path". These are designed to practice applying your introductory and higher level understanding of concepts and solving problems in preparation for upcoming tests. The Study Path contains two practices: a set of "prep questions" and a second set called a "practice test". After you finish the Pre-Class work, the Study Path will open. The study path is graded for correctness: you have two attempts on each question to get full points, subsequent attempts will be worth points but 10% less each attempt). There are three study paths set-up in the course: one before test #1, #2, and the final exam. The

			highest scoring Study Path will be worth 5 points, next highest 3 points, lowest 2 points. Because they can be completed over multiple days, late study paths are not accepted. **If you fail to complete a Study Path, the highest will be worth 6 points, the lowest worth 3 points**. More than one missed study path will result in a loss of 3 points.
Discussion section participation*	5	Tues/Thurs (see times above)	Discussion sections are designed to engage in collaborative problem solving to clarify and deepen understanding of the course concepts. During section, a portion of time will be used to discuss any challenging problems from the previous homework, and the remaining time will be used to work on a *new* problem distributed during section. Sections are every Tuesday and Thursday, and you can attend any section. If you attend and engage meaningfully in collaborative problem solving in at least **8 or more sections out of 10** you will be given 5 points. If you do not attend at least 8 sections, the 5 points be moved to the weight of the final exam. I highly encourage you to attend!
Test #1, #2, and #3 (Final Exam)**	70	July 6, 11am July 20, 11am July 29, 11am	Tests are released on Canvas at 9am (July 6 and 20) or 8am (July 29). You will access the problems, and must submit your answers to GradeScope (via Canvas) no later than the posted deadline. Tests 1 and 2 are designed to be completed in 1.5 hours or less, but you have 2 hours total to submit your test on GradeScope – which means there should be a minimum of 30 minutes to scan (if needed) and upload your exam to GradeScope. The exam is similar in fashion. **It is your responsibility to ensure you are able to upload your completed test in the time allotted.** Make plans to handle interruptions in internet service. There are absolutely no late tests accepted. **Please see below on grading to understand weighting of tests and how late or missed tests (receive a grade of 0) will be accommodated.** Tests are open book/notes. You are not permitted to discuss the questions with one another.
Total	100		
Bonus opportunity #1	0.5 points on final course score	July 24, 11:59pm	Record a 5 minutes video explaining a research study that is related to a concept we covered in class. Please see instructions on Canvas. Submissions are due July 24, 11:59pm to be awarded a bonus point.

Bonus opportunity #2	0.5 points on final course score	July 30, 11:59pm	A course survey will be released during the last week of the course, genuine attempts submitted by 11:59pm on July 30th will be awarded a bonus point.

Grading Scale

A+	96-100
A	92-95
A-	88-91
B+	84-87
B	80-83
B-	76-79
C+	72-75
C	67-71
C-	62-66
D	50-61
F	0-49

Tests/Final Exam Grading

- If both of your test #1 and #2 scores are higher than your final exam score, the highest of test #1 or 2 is worth 20%, lowest worth 10%, and final exam worth 40%. See example Student A below.
- If your final exam score is higher than BOTH test #1 and #2, I will make the final exam worth 70% and tests #1 and #2 worth zero course points. See example Student D and E below.
- If one of your test scores (e.g., test #1) are lower than the final exam, I will score in the following way:
  - If your other test score (test #2) is higher than your final exam score, I will take 5% of the missed or lowest test and place it on the other test to make that test worth 25% of your grade. The remaining 5% will be added to your final exam score, which will be worth 45% of your grade. See Student B and C below.

Consider the examples of 5 students below:

Student	Test 1 score (%)	Test 2 score (%)	Final exam score (%)	Then…
Student A	74	81	71	T1 10%; T2 20%; final exam 40%

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Student B	65	77	74	T1 0%; T2 25%; final exam 45%
Student C	84	0	70	T1 25%; T2 0%; final exam 45%
Student D	55	63	82	T1 0%; T2 0%; final exam 70%
Student E	0	0	80	T1 0%; T2 0%; final exam 70%

Summary of accommodations for illness and emergencies

Review the descriptions of the course work above and how there are flexible policies built-in to almost every part of the course to accommodate for illness and emergencies resulting in a missed assignment or test. Because there is built-in flexibility there are **no make-ups or late work accepted**. Late work counts as a zero. If you are unable to submit something on time because of illness or emergency you are still encouraged to do the work and ask for feedback.

What if I miss the final exam because of illness or an emergency?

In the case of a missed final exam, you will be asked to provide documentation to both me and the Dean of Academic Affairs and/or Student Affairs of your college. Upon receipt of documentation, it will be determined if you can receive a grade of "Incomplete" ("I"). Students with an incomplete will have the opportunity to take a final exam at a later date – set by the instructor. **You must have a passing grade in the course to be eligible for an Incomplete** (in addition to the approved reason and documentation noted above). **You must have taken at least test #1 and/or test #2 in order to be eligible for an "Incomplete"** (in addition to documentation).

Teaching Philosophy

My philosophy is rooted in research on how people learn. This course is designed to encourage collaboration (office hours, discussion sections), frequent feedback, and the development of self-regulated learning skills (planning, frequent practice, reflection on performance). When we have the opportunity to be together in synchronous sessions, I strive to create an environment for everyone to learn together and construct a shared understanding of the material. My goal is to promote critical thinking such that you can apply your knowledge outside of class, and can share it with others.

We will focus on developing an understanding of fundamental concepts as they apply to different examples. Therefore, tests and the exam will include questions that are based on solving problems in new contexts (analysis, applying knowledge, generating ideas, justifying with reasoning). We *will not* focus on memorization.

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Human interaction and communication is very important and helpful when learning! Although it is more challenging in an online course, I encourage you to take advantage of office hours and discussion sections to engage with me, the IAs, and one another!

Academic integrity

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

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	• Be available to all students when we say we will be • Follow through on our promises

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	Not distribute course materials to others in an unauthorized fashion	• 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.

All course materials are the property of the instructor, the course, and the University of California, San Diego and **may not** be posted online, submitted to private or public repositories, or distributed to unauthorized people outside of the course.

Any work associated with the course is expected to be done by you, the enrolled student, and you alone. Discussing overall concepts is a great way to help in learning, but it is not permitted to discuss question answers or share answers.

Any suspected instances of a breach of academic integrity will be reported to the Academic Integrity Office for review and possibly given a score of 0.

Regrades
If a grading error has been made, you should submit a re-grade request via GradeScope. Students who submit items for re-grading understand that the instructor may re-grade the entire test/homework and the score may go up *or* down. Regrade requests may not be processed until the end of the quarter, and at that time there will be no regrades for a student with an A or A+.

Accessibility
http://disabilities.ucsd.edu | osd@ucsd.edu | 858-534-4382
Any student with a disability is welcome to contact me early in the quarter to work out accommodations to support their success in this course. Students requesting accommodations for this course due to a disability should work through the Office for Students with Disabilities (OSD). Instructors will receive Authorization for Accommodations Letters from the OSD online portal. Whenever possible, we will use universal designs that are inclusive. If you have feedback on how to make the class more accessible, please get in touch!

Inclusion
It is our goal to create a learning environment that supports diversity of thought, perspective, experience, and identities. We encourage all of you to participate in discussion and contribute

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to the field from your perspective. If you have feedback on how to make the class more inclusive, please get in touch!

Office of Equity, Diversity, and Inclusion:

858.822.3542 | diversity@ucsd.edu | https://diversity.ucsd.edu/
https://students.ucsd.edu/student-life/diversity/index.html
https://regents.universityofcalifornia.edu/governance/policies/4400.html

Resources for Support and Learning

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<tr><td colspan="2">Learning and Academic Support</td></tr>
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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

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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

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<tr><td colspan="2">Support for Well-being and Inclusion</td></tr>
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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

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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

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Confidential counseling and consultations for psychiatric service and mental health programming

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

Office for Students with Disabilities (OSD)
Supports students with disabilities and accessibility across campus

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 their immigration status and support them through personal and academic excellence

Campus and Course Policies

Course Policies
Planning your time to complete the necessary work and practice to develop strong problem solving and critical thinking skills is imperative for success in this course. It is even more important in a summer session course because of the condensed schedule. Each week is likely to take about 24 hours of work, block off time accordingly. If you want to discuss time management in more detail, I would love to discuss this topic during office hours. Please review above for the policies on completion of tasks and academic integrity.

Health and Well-Being Statement
Students may experience stressors that impact academics and personal well-being. These can include academic stress and pressure, relationship challenges, mental health, drugs and alcohol, identities, finances, and other factors. If you are experiencing stress and concerns it is courageous to seek help! If your stressors are academic, please contact me and I am happy to discuss solutions. I would also encourage you to reach out to the Dean of Academic Affairs for your college. For additional stressors UCSD offers a variety of resources, some of which you can find here: https://vcsa.ucsd.edu/student-success/student-well-being.html

Subject to Change Policy
The information contained in the course syllabus may be – under certain circumstances (e.g., to enhance student learning) – subject to change with reasonable advance notice, as deemed appropriate by the instructor. Any changes are announced on Canvas (please be sure to have your notifications settings on to receive updates/emails/announcements).

Letter of Recommendation Policy
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

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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 class and office hours. Be sure to actively participate in the discussions, talk to me during class and office hours, ask questions, offer your own ideas and interpretations of what we are covering, 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.

Technical Support

For help with accounts, network, and technical issues:
https://acms.ucsd.edu/contact/index.html
For help connecting to electronic library resources such as eReserves and e-journals:
https://library.ucsd.edu/computing-and-technology/connect-from-off-campus/

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**

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