

**Course Overview**

The rediscovery of Mendel’s work on inheritance propelled us towards our modern molecular understanding of genetics and its many applications in research, medicine and society. In this course we will introduce basic concepts that are essential for a broad introduction and understanding of the field of genetics. As we move through the course you can expect that we will answer these three main questions:

- How are specific traits passed from one generation to another?
- How is heritable information stored and used?
- What modern genetic techniques and tools are being used to study biology and how is this knowledge applied to solve “real world” problems?

**Instructional Team**

**Instructor:** Julie Paxman [jar090@ucsd.edu](mailto:jar090@ucsd.edu)  
**Office Hours:** Thursdays, 1–2 PM in H&SS 1145H or by appointment  
**Instructional Assistants (IAs):**  
**Vipula Racha** [vracha@ucsd.edu](mailto:vracha@ucsd.edu) A01  
**Yijin Liu** [yil453@ucsd.edu](mailto:yil453@ucsd.edu) A02 & A03

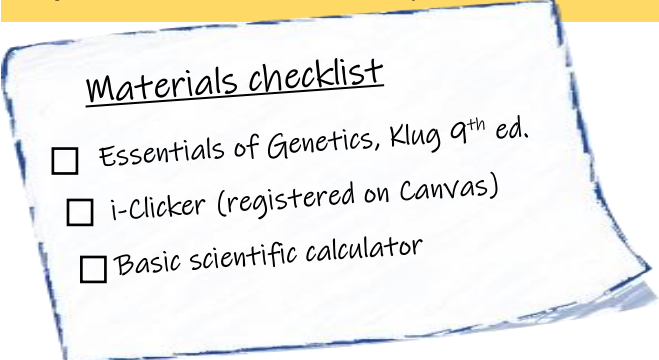
Welcome to BICD 100! In addition to checking off graduation requirements, I hope that you will find answers to genetics-related questions you’ve always wondered about. If during the course you find yourself struggling please seek out help as soon as possible from me or your IA’s—we can meet after class or during office hours and work through whatever questions you may have. If office hours do not work please email me. I will do my best to respond to emails within 24 hours Mon-Fri.

*\*Note: if your emails are regarding information that can easily be found on the course site or was covered in class I may not reply. This is not because I do not want to help, but because it is important to be resourceful about finding available information.*

**Course Schedule and Important Dates**

**Lectures:** M, T, W, Th 11:00am–12:20pm  
**Location:** Pepper Canyon Hall (PCYNH) 106  
**Discussion:** M&W 1–1:50pm or 2-2:50pm or 3-3:50pm  
**Location:** York Hall 3000A

**Aug 5:** first day of lecture and discussion sections  
**Aug 16:** last day to drop course without a “W” grade  
**Aug 19:** midterm exam during lecture  
**Sept 5:** written assignment due  
**Sept 7:** final exam 11:30am-2:30pm location TBA



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

- Explain core concepts of inheritance.
- Interpret and analyze and predict outcomes using data from genetic experiments.
- Engage and question our current understanding of genetic concepts—determine what we know and what we don’t know.
- Identify and critique scientific issues relating to society or ethics.
- **Personal goals:** \_\_\_\_\_

**How will you be evaluated in this course?**

Evaluation	Points	% of Grade	Notes
5 Graded problem sets	4 x 50	20%	Lowest score dropped
5 Quizzes	4 x 50	20%	Lowest score dropped
Class participation (iClickers)	50	5%	85%+ = full credit
Writing assignment	50	5%	See grading rubric
Midterm Exam	200	20%	
Final Exam	300	30%	Cumulative
<b>Total</b>	<b>1000</b>	<b>100%</b>	
Extra credit	3x10	3%	Current event/OH/CAPES

Grade Cutoffs	
<b>A+</b>	98-103%
<b>A</b>	93-97.9%
<b>A-</b>	90-92.9%
<b>B+</b>	87-89.9%
<b>B</b>	83-86.9%
<b>B-</b>	80-82.9%
<b>C+</b>	77-79.9%
<b>C</b>	73-76.9%
<b>C-</b>	70-72.9%
<b>D</b>	60-69.9%
<b>F</b>	<59.9%

## How to do well In this Course:

This class will be largely focused on problem solving and thus will require plenty of practice to master. Lecture and discussion sections are structured in a way to reinforce and check the learning that you are doing outside class including reading, problem sets, and studying. Preparation and work outside of class will make our time together in class more productive and more interesting and will enable your success in the class.

- **Attend lecture and come prepared**

Participation points for attending lecture will come in the form of i>clicker questions.

For i>clicker questions: These are based on completion only. I want to award you points for participating in the process of learning and not punish you for making a mistake while learning. You will receive maximum points as long as you complete i-clickers for 85% of classes. This means that if you are absent or forget your i-clicker for one class (even a few) it will not hurt your participation grade, however, attendance will greatly contribute to your success in the course. There are chapters and topics listed for each lecture. You will be expected to explore these chapters and/or read about the topic before class so that we can get into the more interesting details about each of these topics.

- **Attend discussion section and come prepared**

Monday discussion sections will be dedicated time to allow you to work through the graded problem sets with your peers and with your IA. Your IA will be prepared to help you understand concepts and work through the most challenging problems with you. Discussion section is a great way for you to keep pace with this fast-paced class, to form study groups, and to make new friends!

*Graded problem sets, worth 20% of your grade, will be due by the beginning of your Wednesday discussion sections. Additionally Wednesday discussions will have short quizzes which are worth 50 points each or 20% of your grade.* These quizzes are designed to incentivize you to regularly study the course material so that you can excel on the midterm and the final.

- **Study consistently for your midterm and final exams**

Midterm and final exams will take place in class and during finals week respectively, they are closed note, closed book, closed neighbor. Midterm will cover material from weeks 1-2, and the final will be cumulative. Attending class, doing homework, and studying for quizzes will be the best way to prepare for these exams. Review your notes and ask yourself, "how would I explain this concept."

- **Don't turn stuff in late**

Late work will not be accepted, this is for two reasons. First, the class is so very fast paced that there isn't time to get behind on an assignment or the grading of your assignments. Second, we will allow for you to *drop your lowest quiz and homework score* to accommodate a time where you may not be able to complete the work in time.

- **Ask for a regrade on your exams (if you have a good reason)**

Regrade requests may be made for exams but must be requested within two days of receiving your score. If you can make a strong logical argument which can be supported by the textbook or lecture slide then you may be awarded points back. You may also request a regrade on your exam if you believe points were totaled inaccurately, your score is incorrect, or if you believe the key is incorrect.

- **If you need some extra points, do the extra work (extra credit)**

Ten points extra credit will be awarded for turning in a short summary <1 page about current research or news events that are related to the field of genetics. Please find and include at least one reference to the original source material (ideally find the primary scientific literature that was written about the discovery). Ten more points can be awarded for attending office hours  $\geq 1x$ . Finally an additional ten points will be given if you complete your CAPES at the end of the quarter. Each of these opportunities may only be completed once so that extra credit points will not exceed 30 points total.

# Course Schedule

Week	Date	Associated Chapters	Lecture Topic	Discussion Section	Assignment Due
1	Aug 5		Mendelian inheritance; monohybrid crosses	Graded homework 1	
	Aug 6	Chapter 2 & Chapter 3	Mendelian inheritance; Mitosis meiosis; dihybrid multi-hybrid crosses		
	Aug 7	Chapter 3 cont.	Probability and pedigree analysis	Quiz 1	HW1
	Aug 8	Chapter 4	Deviations from Mendelian ratios and complementation		
2	Aug 12	Chapter 4 cont.	X-linked inheritance, sex-limited and influenced, penetrance	Graded homework 2	
	Aug 13	Chapter 4 & Chapter 5	Sex chromosomes and sex determination		
	Aug 14	Chapter 5.4; Chapter 6	Dosage compensation; Chromosome aberrations	Quiz 2	HW2
	Aug 15	Review	Review or Catch-up		
3	Aug 19		<b>Midterm Exam</b>	Graded homework 3	
	Aug 20	Chapter 7	Linkage and gene mapping		
	Aug 21	Chapter 11.5	Gene mapping cont. and Mapping with molecular markers	Quiz 3	HW3
	Aug 22	Chapter 12.4; Chapter 14	Mutations & central dogma		
4	Aug 26	Chapter 15; Chapter 4.14; Chapter 16	Regulation of gene expression and Cancer Genetics	Graded homework 4	
	Aug 27	Chapter 21	Quantitative traits and measuring heritability		
	Aug 28	Chapter 21.5; Chapter 22	QTLs; Population Genetics	Quiz 4	HW4
	Aug 29	Chapter 18; Chapter 19.7	Genomics, bioinformatics, and systems biology *Intro to written assignment*		
5	Sept 2		LABOR DAY HOLIDAY	LABOR DAY	
	Sept 3	Chapter 17	Recombinant DNA Technology		
	Sept 4	Chapter 19	Genome manipulations; Applications of Genetic engineering	Quiz 5	HW5
	Sept 5	-	Review for Final or Catch-up		Written assignment
	Sept 7	FINAL	<b>Final Exam</b>		

# Student Resources for Support and Learning

- **Library Help**

For questions about eReserves and research tools:

<https://library.ucsd.edu/ask-us/triton-ed.html>

- **Learning Resources**

[Writing Hub](#)

[Supplemental Instruction](#)

[Tutoring](#)

[Mental Health Services](#)

- **Community Centers**

Learn about the different ways UC San Diego explores, supports and celebrates the many cultures that make up our diverse community. <https://students.ucsd.edu/student-life/diversity/index.html>

- **Accessibility**

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

Contact the OSD for further information: <https://disabilities.ucsd.edu/>.  
osd@ucsd.edu | 858. 534.4382

- **Inclusion**

As a class we will come from different backgrounds and have different perspectives, these different backgrounds and perspectives can contribute to our learning experience if they are welcomed and respected. I welcome the diversity that this class will bring and would ask that you please help us in creating an inclusive learning environment. If you have any feedback or questions please let me know. Available on campus are the following resources:

Office of Equity, Diversity, and Inclusion:

858.822.3542 | [diversity@ucsd.edu](mailto:diversity@ucsd.edu) | <https://diversity.ucsd.edu/>

<https://students.ucsd.edu/student-life/diversity/index.html>

<https://regents.universityofcalifornia.edu/governance/policies/4400.html>

- **Basic Needs**

Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in this course, is encouraged to contact:

[foodpantry@ucsd.edu](mailto:foodpantry@ucsd.edu) | [basicneeds@ucsd.edu](mailto:basicneeds@ucsd.edu) | (858)246-2632

- **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/>

For help installing Zoom for video conferencing, virtual office hours, synchronous lectures:  
<https://blink.ucsd.edu/technology/file-sharing/zoom/index.html>

## UC San Diego Academic Policies

- **Academic Integrity**

Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating, or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in the class and suspension or dismissal from the University. So, think carefully before you act. Before you act, ask yourself the following questions: a) is my action honest, fair, respectful, responsible, and trustworthy, and b) is my action authorized by the instructor? If you are unsure, don't ask a friend, ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at [academicintegrity.ucsd.edu](http://academicintegrity.ucsd.edu). (Source: Bertram Gallant, T. (2017). Teaching for integrity. UC San Diego Academic Integrity Office.)

- **Refer to:**

[UCSD Student Conduct Code](https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf)

([https://students.ucsd.edu/\\_files/student-conduct/ucsandiego-student-conduct-code\\_interim-revisions1-16-18.pdf](https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf))

[Principles of Community](https://ucsd.edu/about/principles.html)

(<https://ucsd.edu/about/principles.html>)

- **Religious Accommodation**

It is the policy of the university to make reasonable efforts to accommodate students having bona fide religious conflicts with scheduled examinations by providing alternative times or methods to take such examinations. If a student anticipates that a scheduled examination will occur at a time at which his or her religious beliefs prohibit participation in the examination, the student must submit to the instructor a statement describing the nature of the religious conflict and specifying the days and times of conflict.

For final examinations, the statement must be submitted no later than the end of the second week of instruction of the quarter.

For all other examinations, the statement must be submitted to the instructor as soon as possible after a particular examination date is scheduled.

If a conflict with the student's religious beliefs does exist, the instructor will attempt to provide an alternative, equitable examination that does not create undue hardship for the instructor or for the other students in the class.

- **Discrimination and harassment**

The University of California, in accordance with applicable federal and state laws and university policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities.

If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the Office for the Prevention of Harassment & Discrimination (OPHD) at (858) 534-8298, [ophd@ucsd.edu](mailto:ophd@ucsd.edu), or [reportbias.ucsd.edu](http://reportbias.ucsd.edu).

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options.

A student who chooses not to report may still contact CARE at the Sexual Assault Resource Center for more information, emotional support, individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include Counseling and Psychological Services, Office of the Ombuds, and Student Health Services.

CARE at the Sexual Assault Resource Center  
858.534.5793 | [sarc@ucsd.edu](mailto:sarc@ucsd.edu) | <https://care.ucsd.edu>

Counseling and Psychological Services (CAPS)  
858.534.3755 | <https://caps.ucsd.edu>

## **Subject to Change Policy**

I have done my best to lay out the expectations of this course, both of what you can expect from me and what I expect from you as students. However, the schedule and grades may be subject to change. If there are any changes I will alert you via Canvas, lecture, and email, and all changes will be towards your benefit.