

BICD 100R Genetics
Spring 2024
General Course Information

see Course Calendar for topics, assignments, activities, and exams

Course description: an introduction to the principles of heredity emphasizing diploid eukaryotic organisms. Course-level learning goals:

- Deduce genotypes, allelic relationships, and modes of inheritance for traits determined by alleles of one or two genes by analyzing the outcomes of crosses and patterns of inheritance observed in pedigrees
- Apply knowledge of the mechanisms by which an organism's genome is passed on to the next generation
- Describe the molecular anatomy of genes, chromosomes and genomes and how they relate to the genetic control of heritable traits.
- Compare different types of mutations in terms of their impacts on gene function and how these changes relate to phenotypes
- Analyze genetic linkage in relation to patterns of inheritance and genomic locations
- Make deductions about gene interactions by analyzing cross outcomes
- Analyze genetic control of traits that are influenced by multiple genes and the environment
- Analyze the relationship between allelic and genotypic frequencies in populations and the impact of processes that alter these frequencies over time

Instructor: Professor Laurie Smith lgsmith@ucsd.edu

Available throughout the week in office hours sessions (see below) and for one-on-one appointments by email request

Instructional Assistants:

Yufei Deng (Graduate Teaching Assistant): y9deng@ucsd.edu

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Lectures: Lectures are asynchronous, i.e. recorded and posted on Canvas for you to watch on your own schedule. They will be posted in weekly modules well in advance of due dates for assignments on the corresponding topic. Lecture videos have questions embedded to give you a chance to develop and test your understanding of lecture material as you go along, however answering these questions doesn't earn course points. Lecture slides without annotations will be posted in each weekly module at the same time as the lecture videos – you are encouraged to use them to take notes; annotated slides will become available on Thursdays at 6pm.

Readings: There is no assigned textbook or required reading for this course. Lectures are intended to convey all the content knowledge needed for success on homework and exams. In case you want more input, or learn better from readings than lectures, links to free online readings are provided in the Course Calendar for most weeks. These do not cover all the ground of each lecture and are not intended as a substitute for lecture videos but can serve as a helpful supplement. Nearly all topics in this course are also presented in any college level genetics textbook (e.g. Klug, Cummings et al. *Essentials of Genetics*, Pearson, 10th or other recent edition) so a textbook like this would be a great resource, but again, is not essential if you are understanding the lectures thoroughly.

Codon Learning:

This class will use a courseware platform called Codon Learning offering practice in applying concepts and developing skills that will be needed for success using research-backed strategies. There will be one homework assignment each week consisting of problems I have chosen or created for use in our course. You will also be assigned a CL “study path” for each exam to facilitate your exam prep process.

To get started using Codon Learning (CL):

- Enter the CL system via the Canvas module “Codon Learning Assignments”. In this module, click on “Codon Learning” to enter the CL system, then click “Load Codon Learning in a new window to enter CL world. All CL assignments are accessed here.
- Start with the “pre-class assignment” you will see in the column for Tues. Apr. 2 (the due date, but it’s available now) titled Genetics review and Codon Learning onboarding. At the end of this assignment, you will find 6 questions introducing you to Codon Learning.
- Throughout the course, tech help is available from Codon from their [support page](#) where you can create a support ticket and see various other resources. You can also email support@codonlearning.com. Many questions you may have are answered at this [FAQ page](#). Genetics questions should be directed to your IA or instructor though!
- Registered students will have **free access to CL via Canvas through April 21**. Access thereafter requires payment. There are two payment options (also explained [here](#)):
 1. Purchase access w-a credit or debit card for \$35 within the CL system (enter via Codon Learning module on Canvas; go to Course Access tab; choose credit card payment option).
 2. Purchase an access code from the UCSD Bookstore (\$46.75, including Bookstore surcharge). This allows you to use financial aid, if you have funds in your student account that can be used for textbook purchases. To do this online, start [here](#). You can also do this transaction in person at the UCSD bookstore. You can ask the bookstore for help via email to textbooks@ucsd.edu. Once the purchase is finalized and fulfilled, an access code will be emailed to you from the bookstore. Then go to the Course Access tab within the Codon Learning system (access via CL module in Canvas), and choose the “I have an access code” option.

Discussion sections:

Discussion sections meet weekly (join via Zoom within Canvas) and provide an opportunity to further build your skills in problem solving, analysis and interpretation of information, and responding to questions requiring different types of answers from those on Codon Learning, which you will also see on exams. Each group of students will jointly submit a Google doc showing their work on assigned problems, due at the end of section. Credit will only be awarded for participation in the discussion section you are enrolled in. Everyone gets two “free” absences (i.e. there is no point penalty for missing section twice, without need to notify your IA or give a reason). Use these wisely when actually needed because additional excused absences won’t be granted unless you present a compelling case for why you were unable to participate in section 3 or more times.

Exit Quizzes:

Each week there will be a 6 point Canvas quiz on Friday (available all day in the appropriate weekly module; due at 11:59pm). Each quiz will have questions closely resembling lecture video questions, Codon Learning homework questions, and discussion section questions from that week. This low-stakes quiz will give you honest feedback on your progress toward mastery of each week’s material.

Office Hours:

To find help and make personal connections with instructors and fellow students, please take advantage of office hours hosted on Zoom at multiple times every week (times shown on the Course Calendar and accessed via the Zoom link within Canvas). Here, you can ask questions about course material, share your concerns, vent your frustrations, find study partners, get study tips, etc. You do not need to have a genetics question, or any question, to join. We can talk about whatever is on your mind, or you can just listen to what others bring up. All students are welcome to all OH sessions, regardless of who is hosting.

Exams:

There will be 3 exams, all administered as Canvas quizzes with a variety of question formats. Some questions may require writing out a solution or making a drawing by hand with pen/pencil and paper, taking a picture of that, and submitting the image, so be prepared for that! A practice test containing the range of question types you will see on the real exam, and giving you a chance to practice uploading photos of hand-written answers, will be available in the appropriate exam module. You will have two hours to complete each exam as follows:

1. Midterm I Mon. Apr. 22 6:30-8:30pm (covering material from weeks 1-3 only)
2. Midterm II Mon. May 20 6:30-8:30pm (covering material from weeks 4-7 only)
3. Final Exam Mon. June 10 7:00-9:00 (covering material from weeks 8-10 only + post assessment)

You will not be able to take the exam at other times, except in cases where a serious, unforeseeable problem arises, such as illness. Contact the instructor ASAP if you have a situation like this. See Academic Integrity section at the end regarding authorized vs. unauthorized aids during exams.

Grading: your final grade will be determined by the percentage of total points earned. Points are available as follows:

80 points (20%) for Codon Learning assignments
32 points (8%) for discussion section participation (4 pts per week with lowest 2 scores dropped)
48 points (12%) for weekly Exit Quizzes (6 pts each with lowest 2 scores dropped)
100 points (25%) for midterm I
100 points (25%) for midterm II
40 points (10%) for final exam (both parts)
400 points total

These guidelines will be used to assign grades:

>360 points (90%) A (A-, A or A+)
>320 points (80%) B (B-, B or B+)
≥260 points (65%) C (C-, C or C+)
≥200 points (50%) D
<200 points (50%) F

If necessary, these cutoffs will be adjusted downward so that at least 60% of students receive an A or a B, but they will not be adjusted upward for any reason.

Academic integrity:

The aim of your instructor and IAs is to foster all students' ability to excel with integrity, and we expect that the work on all credit-bearing assignments will be your own, but you are free to discuss homework problems with fellow students, IAs and the instructor prior to submission. Exams are open book, open note, and open device - you are free to consult videos, slides, readings and notes during the exam, but you may not give or receive help on exams from another person or chatbot/AI. Please respect these standards of academic integrity, without which grades and a UCSD degree are not meaningful. If Prof. Smith has a good reason to think you have **received or given** assistance on an exam, she will file a report with the UCSD Academic Integrity Office (AIO). A student confirmed to have engaged in academic dishonesty will receive an F as their final grade, in addition to the disciplinary actions determined as appropriate by the AIO.