

**BICD 100 WINTER 2020
GENERAL COURSE INFORMATION**

Instructor: Professor Deborah Yelon (dyelon@ucsd.edu)

Lectures: TuTh, 3:30-4:50 pm, Mandeville B-150

Discussion sections: Section A01 on Wednesdays, 12:00-12:50 pm in HSS 1305;
Section A02 on Fridays, 2:00-2:50 pm in HSS 2321

Midterm exam: Friday, February 7, 8:00-9:20 pm, CSB 001

Final exam: Tuesday, March 17, 3:00-6:00 pm

Prerequisites: BILD1 is a required prerequisite for this course. You may find it beneficial to review relevant BILD1 material.

Textbook: Our textbook is *Essentials of Genetics* by Klug, Cummings, Spencer, and Palladino, 9th edition. New and used copies of this textbook are available for sale and rental in bound and loose-leaf versions at the UCSD bookstore. An electronic version of the textbook is also available. The textbook has also been placed on reserve at the library. An optional resource for this course is the *Study Guide and Solutions Manual for Essentials of Genetics*, 9th edition. New and used copies of this optional book are available for sale and rental at the UCSD bookstore, and it has also been placed on reserve at the library.

Course website: Announcements, information, and materials for this course will be posted on our course website (<http://canvas.ucsd.edu>). Use your UCSD student email account login and password to access the website. Images from lectures will be posted as PDFs on the course website: a subset of images will be posted in advance of each lecture, and additional images will be posted at the conclusion of each lecture. Podcasts of lectures will also be available online (<http://podcast.ucsd.edu>).

Lectures: Our course's lectures provide an introduction to the principles of heredity, with a particular emphasis on the types of experiments and data that geneticists use to analyze the basis for inheritance of specific traits. Lecture topics (see lecture schedule on course website) include Mendelian inheritance, deviations from classical Mendelian ratios, pedigree analysis, gene mapping, genome manipulation in model organisms, quantitative genetics, and population genetics. During lectures, in addition to discussing key concepts, we will also develop your skills in data analysis and interpretation through active problem-solving. In order to be prepared for in-class problem-solving, it will be important to do the assigned reading in advance of each lecture (see below).

Pre-lecture reading: Specific sections of our textbook are assigned as pre-lecture reading; the lecture schedule on our course website indicates which textbook sections

correspond to each lecture. Additional pre-lecture resources (website links, videos, articles) will be provided as the quarter progresses; all resources will be posted on our course website. Keeping up to date on pre-lecture reading will help you to get the most out of the material presented in lectures. To further incentivize completion of the pre-lecture reading, we will administer quick quizzes during lecture (see below).

Instructional assistants: Your instructional assistants (IAs) this quarter are Shiv Patel (shp093@ucsd.edu; Section A01) and Kelly Kim (knk006@ucsd.edu; Section A02).

Discussion sections: Discussion sections will meet weekly, beginning in week 1. Each discussion section will provide you with additional problem-solving experience; your IAs will present new problems (called “Section Problems”) each week. In addition, discussion sections provide an opportunity to ask your IAs questions about the course assignments or about other aspects of the course material. You can earn a maximum of 40 points for participation in the discussion section in which you are enrolled. Participation can be in the form of asking questions to the IA, answering questions posed by the IA, and/or working actively to solve Section Problems provided by the IA. Passive attendance at section will not count as participation. Sections will meet 10 times during the quarter. The maximum value of 40 points will be awarded to students who participate actively in at least 8 meetings of their assigned section. Lower point values will be awarded for less frequent participation.

Assignments: Course assignments will be posted on our course website on Thursdays at 5:00 pm (see lecture schedule). Each assignment will be a problem set that promotes comprehension of course topics and builds your problem-solving skills. It is recommended that you complete assignments before attending the following week’s discussion section, since your section is an excellent venue to discuss questions arising from assignments. Answer keys for course assignments will be posted on our course website on Thursdays at 5:00 pm, at the same time as the posting of the course assignments. Course assignments and answer keys will be posted in separate folders, and it is strongly recommended that you attempt to complete the assignments before consulting with the answer key, as this will provide the best learning experience. By posting the assignment and key simultaneously, we are aiming to make it easy for you to check your answers whenever you’re ready. Assignments will not be graded, and no points are earned for completing assignments.

Quizzes: To provide incentives for staying up-to-date with pre-lecture reading and course assignments, we will offer quick quizzes in lectures and in discussion sections. These easy quizzes will be directly based on the assigned material and will therefore reward students who complete their reading before each lecture and their assignments before each discussion section. There will be 6 quizzes given in discussion sections and 18 quizzes given in lectures. Each correctly completed quiz will be worth 2 points, and 1 point will be given for each incorrectly completed quiz. A maximum of 40 points will be awarded per student for performance on quizzes. No make-up quizzes will be offered.

Exams: As stated above, the midterm exam will take place on Friday, February 7, 8:00-9:20 pm, and the final exam will take place on Tuesday, March 17, 3:00-6:00 pm. If you have an illness, injury or personal situation that you believe will prevent you from performing adequately on an exam, you must contact the instructor before the exam to discuss your options.

Both exams will be free response. You will not need to bring blue books to the exams. Exam regrade requests must be submitted in writing with your exam to the instructor within one week of when graded exams were first made available for pickup. Exams written in pencil will not be regraded.

Review sessions: There will be a review session held a few days before the midterm exam to help you with reviewing relevant material; the specific date, time, and location of this review session will be announced in lecture and on the course website. Similarly, there will be a review session held a few days before the final exam; details will be announced later in the quarter.

Discussion board: The course website features a discussion board where you can post questions, receive answers, read other students' questions and answers, and even answer other students' questions. The discussion board is the first and best place to go with your questions about this course.

Contact information: If you have questions that have not been answered by the discussion board, you can contact the IAs by email. For questions that have not been answered by the discussion board or by the IAs, you can contact the instructor by email. In your emails regarding our course, please make sure that the subject line includes "BICD 100" and that the message includes your student PID.

Office hours: The instructor will hold office hours each week on Thursdays from 2:00-3:00 pm in NSB 6113, beginning January 9. IA office hours will be posted on the course website and will begin during the week of January 13. You are welcome to attend the office hours of either IA.

Grading: Your final grade will be determined by what percentage of the total available points (500 points) you earn. Points are available as follows:

160 points for midterm
260 points for final exam
40 points for quizzes
40 points for discussion section participation
500 points total

These guidelines will be used to assign grades:

≥425 points (85%) A (A-, A or A+)
≥375 points (75%) B (B-, B or B+)
≥300 points (60%) C (C-, C or C+)
≥250 points (50%) D

If necessary, these cutoffs will be adjusted downward so that at least 50% of students in the class receive an A or a B, but they will not be adjusted upward for any reason.

Academic integrity: Academic dishonesty will not be tolerated in this course.

According to UCSD policy, academic dishonesty includes:

- taking an exam for another student
- allowing another student to take an exam for you
- copying another student's work on an exam
- allowing another student to copy your work on an exam
- altering a graded exam and submitting it for a regrade

Since quiz questions earn you course credit, responding to a quiz on behalf of another student will also be considered an act of academic dishonesty. Any student caught cheating or suspected of cheating will be reported to the UCSD Academic Integrity Coordinator and the Dean of the student's college. Confirmed cases of cheating will result in the student receiving an F as their final grade and other disciplinary actions determined appropriate by the Academic Integrity Coordinator.

Lecture	Day	Date	Topic	Pre-lecture Reading	Notes
1	Tuesday	January 7	Mendelian inheritance: monohybrid crosses		
2	Thursday	January 9	Mendelian inheritance: dihybrid crosses (and chi-square test)	Chapter 3 (3.1-3.3; 3.8)	Assignment 1 posted on Canvas
3	Tuesday	January 14	Multihybrid crosses; Pedigree analysis	Chapter 3 (3.4, 3.7, 3.9)	
4	Thursday	January 16	Deviations from Mendelian ratios	Chapter 4 (4.1-4.6, 4.9-4.10, 4.13)	Assignment 2 posted on Canvas
5	Tuesday	January 21	More on deviations from Mendelian ratios	Chapter 4 (4.7-4.8)	
6	Thursday	January 23	Physical basis for inheritance; X-linked traits	Chapter 2 (2.2-2.4); Chapter 3.5; Chapter 4.11	Assignment 3 posted on Canvas
7	Tuesday	January 28	Sex chromosomes and sex determination	Chapter 4 (4.12; 4.15); Chapter 5 (5.1-5.2)	
8	Thursday	January 30	Dosage compensation; Chromosome aberrations	Chapter 5.4; Chapter 6 (6.1-6.4)	Assignment 4 posted on Canvas
9	Tuesday	February 4	Linkage and gene mapping	Chapter 7 (7.1-7.2)	
10	Thursday	February 6	More on mapping, including mapping with molecular markers	Chapter 7 (7.3, 7.5)	
MIDTERM	Friday	February 7	MIDTERM EXAM (8:00-9:20 pm; CSB 001)		Covers material from Lectures 1-9
11	Tuesday	February 11	DNA structure and forensic analysis	Chapter 11.5; Chapter 12.4; Special Topic 3	
12	Thursday	February 13	Mutations	Chapter 14 (14.1-14.5)	Assignment 5 posted on Canvas
13	Tuesday	February 18	Cancer genetics	Chapter 16 (16.1-16.4; 16.6)	
14	Thursday	February 20	Regulation of gene expression	Chapter 15 (15.1-15.4; 15.6-15.10); Ch. 4.14	Assignment 6 posted on Canvas
15	Tuesday	February 25	Epigenetics	Special Topic 1	<i>Lecturer: Dr. Julie Law, Salk Institute</i>
16	Thursday	February 27	Quantitative traits and measuring heritability	Chapter 21	Assignment 7 posted on Canvas
17	Tuesday	March 3	Population and evolutionary genetics	Chapter 22	
18	Thursday	March 5	Genomics, GWAS, and genome manipulation	Ch. 17.6; Ch. 18.4-18.6; Ch. 19.7; Sp. Topic 4	Assignment 8 posted on Canvas
19	Tuesday	March 10	Applications of genetic engineering	Ch. 19 (19.1-19.3, 19.8-19.9); Sp. Topics 5, 6	
20	Thursday	March 12	Telomeres and telomerase	Chapter 10.7	<i>Lecturer: Dr. Vicki Lundblad, Salk Institute</i>
FINAL	Tuesday	March 17	FINAL EXAM (3:00-6:00 pm: Location TBA)		Covers all course material