

BICD 100: Genetics, Winter 2024

Instructor: Sinem Beyhan Pelvan, Ph.D.

sbeyhan@health.ucsd.edu (Please put BICD 100 in the subject line)

Office hours: Tue 10:00-11:00 am and Thu 2:30-3:30 pm (Zoom links are provided through CANVAS).

Lectures: Mon/Wed 6:30-7:50 pm in GH 242 - **in person**

The lectures will be recorded and posted according to the schedule of lectures below. If you run into technical issues with the CANVAS website, please contact EdTech directly at <https://ucsd servicedesk.service-now.com/its>

Discussion section: Wed 10:00-10:50 am - **on Zoom**

Zoom links for the discussion section and IA office hours will be provided in their Canvas pages. Attendance is not mandatory; however, we strongly encourage you to attend discussions and office hours. Please ask questions!

Each week a set of review questions will be assigned. These will not be graded; however, they are very useful for weekly reviewing the material. Answers to these questions will be discussed in sections, and will **NOT** be posted online.

IA	Contact
Qiurui Rachel Zeng (Grad IA)	q3zeng@ucsd.edu
Melia Movsesian	mmovsesian@ucsd.edu
Monet Nadimyan	mnadimyan@ucsd.edu
Sophia Boyer	soboyer@ucsd.edu
Bradley Liu (Reader)	brliu@ucsd.edu

Required materials:

1. A textbook is not required for this course. I will post free, online material when available. You can use these online resources or others that you find. If you prefer a textbook, the Essentials of Genetics by Klug et al is recommended. Any versions of this book can be used.
2. A computer or a tablet connected to a high-speed internet will be required to be able to complete the course assignments and participate in exams.

Course description: This is an upper division course on gene and chromosome structure, phenotype, chromosome segregation and recombination, gene expression, random mutation, inheritance, human

evolution and genomics. This course is designed to foster a collaborative environment for everyone to learn together and construct a shared understanding of the material. We encourage you to engage both in class and in discussion sections.

Evaluation:

1. **Quizzes (15% of your grade):** There will be online quizzes posted **every Thursday morning and will be open until Sunday night.** Out of the 7 total graded quizzes (15 points), top 5 scores will be averaged and added to your total score. Please note that there is no rescheduling or make-up quizzes.

2. Exams (80% of your grade):

- ❖ Midterm will be on **Wednesday, Feb 7th**, during the scheduled lecture time.
- ❖ Final exam will be on **Wednesday, March 20th, 7:00 - 10:00 pm.**

The exams will be weighted one of the two ways whichever is most beneficial to the student:

- ❖ 30% Midterm + 50% Final exam
- ❖ 80% Final exam

- All exams are closed book; however, you can bring **one double-sided page (A4/letter size) of study notes** that is prepared by **YOU**. Sharing these notes is not allowed during the exam and will be considered a violation of academic integrity.
- We will check photo ID at each exam, so please bring a photo ID. Students who do NOT have photo ID will not be permitted to submit their exams.
- There is no rescheduling or make-up exams. Please note that it is required for all students to take the midterms. Failure to take a midterm without a medical excuse will result in losing the 30 points from your total grade.
- Final exam is cumulative. To be fair to everyone, the final will be offered only at the time scheduled, except under extraordinary, documented circumstances (e.g. documented illness that requires hospitalization), and Dr. Beyhan must be notified of that extraordinary circumstance *prior* to the final exam.
- A written request must be submitted to Dr. Beyhan and the Grad IA Rachel Zeng for re-grading of the exams within one week of receiving the exam score.

3. Take-home project (5% of your grade):

Please pick either the Express YourCELLf or Talk Science projects and submit them through CANVAS. Note that at least 4 hours of total commitment is expected. These projects are due the last day of classes **Friday, March 15th.**

Express YourCELLf project (5 points):

- ❖ Inspired by “Dance your PhD” competitions of *Science* magazine
- ❖ Check out the videos on youtube

- ❖ Interpret your favorite cellular process by dancing, singing, drawing, poetry, acting, writing a story.. Group projects are encouraged.
- ❖ Videos or art pieces will be judged by the teaching team based on quality (1 pt), originality (1 pt), and effort (3 pts) for total of 5 points.

Talk Science project (5 points):

- ❖ Pick a seminal research paper about genetics and record a video (**max. 5 min**) explaining your interpretation of the study/news (aim (1 pt), methods (1 pt), interpretation of results and overall impact (3 pt) of the study).

4. Extra credit (4 bonus points):

BICD 100 Genetics lecturers are conducting a research about the effectiveness of our individual teaching styles. To this end, all BICD 100 sections administer pre- and post-assessment quizzes. Completion of these quizzes is optional. Extra credit points as described below:

- Completion of pre-assesment quiz in class: 2 points
- Completion of pre-assesment quiz at home: 1 point
- Completion of post-assesment quiz in class: 2 points
- Completion of post-assesment quiz at home: 1 point

Grades:

The class will be graded on a standard scale (not on a curve) so that everyone has the opportunity to achieve a high grade. However, in the event that the class average is below B-, the top 5% of scores will be normalized to the highest score (A). Normalized scores will be used to calculate grades using the following distribution:

100-92% A, 91-88% A-
 87-83% B+, 82-80% B, 79-76% B-
 75-72% C+, 71-67% C, 66-62% C-
 61%-50% D
 49-0% F

Academic Integrity

Academic dishonesty undermines the hard work of all students in the class who take responsibility for their learning. Academic dishonesty is incompatible with science and the search for truth. We do not tolerate it. Out of respect and appreciation for your own efforts, nor should you. We encourage you to talk with any of the BICD 100 teaching team if you learn of any incidents of academic dishonesty. Any student violating UCSD's Academic Dishonesty or Student Conduct policies will earn an 'F' in the course and will be reported to their college Dean for administrative processing. Committing acts that violate Student Conduct policies, resulting in course disruption may be cause for suspension or dismissal from UCSD. Submitting online assignments for someone else will be treated as violations of Student Conduct Policies.

Schedule of Classes:

Week	Date	Lecture	Quizzes/Problem sets
1	Mon, 1/8	Introduction to genetics, Pre-assessment (in class, optional)	
1	Wed, 1/01	DNA structure, replication, transcription	Problem set #1
2	Mon, 1/15	MLK day (no lecture)	
2	Wed, 1/17	Translation	Problem set #2, Quiz #1 (online)
3	Mon, 1/22	Mutation and DNA repair	
3	Wed, 1/24	Regulation of gene expression	Problem set #3, Quiz #2 (online)
4	Mon, 1/29	DNA organization and Epigenetics	
4	Wed, 1/31	Meiosis and Mitosis	Problem set #4, Quiz #3 (online)
5	Mon, 2/5	Review/Q&A	REMOTE
5	Wed, 2/7	MIDTERM EXAM (in class)	
6	Mon, 2/12	Simple (Mendelian) inheritance-I	
6	Wed, 2/14	Modification to Mendelian inheritance-I	Problem set #5, Quiz #4 (online)
7	Mon, 2/19	President's day (no lecture)	
7	Wed, 2/21	Modification to Mendelian inheritance-II	Problem set #6, Quiz #5 (online)
8	Mon, 2/26	Chromosome mapping and linkage-I	
8	Wed, 2/28	Chromosome mapping and linkage-II	Problem set #7, Quiz #6 (online)
9	Mon, 3/4	Human evolution and Population genetics	
9	Wed, 3/6	Quantitative traits and Precision medicine	Problem set #8, Quiz #7 (online)
10	Mon, 3/11	Gene editing and Gene therapy	
10	Wed, 3/13	Post-assessment (in class, optional)	
10	*Fri, 3/15	Review/Q&A	REMOTE at 3:00-5:00 pm
	Wed, 3/20	FINAL EXAM (7:00 pm - 10:00 pm)	

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 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>

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, <https://ophd.ucsd.edu/>, or <http://ophd.ucsd.edu/report-bias/index.html>

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 | <https://care.ucsd.edu>

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

CHILDREN IN CLASS/SECTION

I fully understand that childcare situations may be complicated. If you need to bring a child to class or section, you may do so. Please be prepared to bring the child outside should they be disruptive to the class. Do your best to participate and engage, but also please get in touch with me if you have any questions or concerns.

Student Resources for Support and Learning

ACADEMIC SUPPORT

Geisel Library	Research tools and eReserves
Content Tutoring with the Teaching + Learning Commons	Drop-in and online tutoring through the Academic Achievement Hub
Supplemental Instruction with the Teaching + Learning Commons	Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses
Writing Hub Services in the Teaching + Learning Commons	Improve writing skills and connect with a peer writing mentor
Learning Strategies Tutoring	Address learning challenges with a metacognitive approach
OASIS	Intellectual and personal development support
Student Success Coaching Program	Peer mentor program that provides students with information, resources, and support in meeting their goals
Academic Integrity	Policy on Academic Integrity of Scholarship and strategies to excel with integrity
Technical Support	Assistance with accounts, network, and technical issues

STUDENT RESOURCES

Basic Needs	Provides access to food, housing, and financial resources
Counseling and Psychological Services (CAPS)	Provides services like confidential counseling and consultations for psychiatric services and mental health programming
Community Centers	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
Counseling and Psychological Services	Individual, group, couples, and family psychotherapy services for registered undergraduate and graduate students
Office for Students with Disabilities	Documents students disabilities, provides accessibility resources, and reasonable accommodations
Triton Concern Line	Report students of concern at (858) 246-1111

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.

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/>