

**BICD 100 Genetics
Fall 2021 (A00) – In-Person Course**

Instructor: Goran Bozinovic
Lectures: Tu, Th 5-6:20 PM
Location – in Person: MOS 0114
Lecture Podcast: <https://podcast.ucsd.edu>

Note: in case the course shifts to remote format due to the pandemic, the lecture and sections zoom information will be provided. Until then, all lectures and section meeting will be held in person and no zoom attendance nor recordings will be available.

Course website: <https://canvas.ucsd.edu/courses>
Textbook: *Essentials of Genetics* by Klug, Cummings, Spencer, Palladino. 10th ed, Benjamin Cummings (older editions are ok)
Text website: www.geneticsplace.com
Recommended supplement: *Essentials of Genetics: Study Guide and Solutions Manual* by Nickla H, 10th ed. (older editions are ok)

Course Description: An introduction to the principles of heredity emphasizing diploid organisms. Topics include Mendelian inheritance and deviations from classical Mendelian ratios, pedigree analysis, gene interactions, gene mutation, linkage and gene mapping, reverse genetics, population genetics, and quantitative genetics.

Goals: Genetics is important, interesting, and fundamental for modern biology. Genes are basic units of biology and inheritance for ALL life forms. This course will introduce and explore gene discovery and related studies, and their use in analysis and manipulation of biological function. We will also explore how genes are inherited and the importance of genetic variation in populations. We will use quantitative classical and modern approaches (problem solving) to predict genetic outcomes.

Prerequisites: BILD 1. Review the relevant material if necessary.

Contact Information

Email: gbozinovic@ucsd.edu

Office: HSS 1145G

Office hours: Thursday 2-3 PM, York 3306 or by appointment

IF you have course-related questions via email, please contact your section IA first. If you still need assistance, when emailing me, put BICD100 or Genetics in the subject line, or your email may not be read promptly. Please use gboznovic@ucsd.edu email to contact me; emailing via CANVAS will delay responses. Note that generally during weekends my access to internet is limited and you may not get the reply until the following Monday.

Course Website (Canvas):

- For class-related materials, please access the Canvas at <https://canvas.ucsd.edu> using your username and password.
- Make sure to log in often and check for announcements.
- Post all class-related questions on the discussion board.
- Each IA section will have its own folder, so that section-specific materials can be posted and retrieved accordingly.

Discussion Sections and Instructional Assistants (IAs):

- You must be enrolled and attend / participate in a section in person or virtually, since 11% of your grade is determined by section participation (see grading below). If not, you will not receive credit for problem sets (see problem set section below), nor will you be able to take the quizzes, which will be administered during the section at the IA's discretion.

Sec	Day / Time	Room	IA	Email
A01	M 9-9:50 AM	HSS 1128A	Madison Chew	m2chew@ucsd.edu
A02	W 8-8:50 AM	CENTR 217A	Ginevra Caswell	gecaswel@ucsd.edu
A03	W 12-12:50 PM	CENTR 217A	Aneesh Swamy	arswamy@ucsd.edu
A04	F 2-2:50 PM	LHSS 2321	Saager Chawla	stchawla@ucsd.edu
A05	W 8-8:50 PM	CENTR 217B	Yukta Chidanandan	yhidana@ucsd.edu
A06	F 8-8:50 AM	CENTR 217A	Ginevra Caswell	gecaswel@ucsd.edu
A07	F 6-6:50 PM	HSS 1305	John Paul Seitz	jpseitz@ucsd.edu

Section meetings start on Monday, September 27th.

IA's office hours will be posted on CANVAS by Friday, Oct 1st.

ATTENDANCE – IMPORTANT! This is the IN-PERSON course - you should attend lectures IN PERSON as your performance in the course is usually highly correlated with attendance.

If you are not able to attend in person, **lecture podcasts will be available via** <https://podcast.ucsd.edu>; Lecture presentation slides and additional materials will be posted on CANVAS course page in MODULES folder. If we switch to a zoom on-line format due to pandemic and per changes in UCSD attendance policy, the remote attendance instructions will be provided promptly, so that we could make a quick transition and continue the course without much interruption.

Discussion Sections: the same format – IN PERSON attendance - is applied to discussion sections, so please be aware of your discussion schedule. Discussion Sections will begin during week 1, on Monday, September 27th. You need to attend the discussion section in which you are enrolled in person; you cannot attend other discussion sections! Discussion section links are listed in the IA information table above and in the discussion section syllabi.

If you are ill, DO NOT attend the lecture / discussion section in person.

IN-PERSON ATTENDANCE - Classroom Etiquette:

Detailed information on being on campus and attending courses in person can be found at <https://returntolearn.ucsd.edu/return-to-campus/campus-plan/index.html>. In short,

- ALWAYS: cover your face with a mask Attend only lectures according to your schedule:
 - Mask Policy:
 - **Indoor: everyone must mask**
 - Regardless of vaccination status, all students, faculty and staff must wear a mask or face covering at all indoor locations at UC San Diego. Masks may be removed if you are alone in an enclosed office with a closed door; you may also eat or drink in this enclosed setting.
 - **Outdoor: masking highly encouraged**
 - All students, faculty and staff are encouraged, but not required, to wear masks outdoors while on campus. Attendees at outdoor campus events must wear a face mask if required by the event organizer.

Types of masks:

- The campus recommends the use of N-95 and KN-95 masks.
- A face covering/face mask DOES NOT include a scarf, ski mask, balaclava, bandana, gaiter, turtleneck, collar, plastic face shield or single layer of fabric.
- Indoor classrooms: everyone, both students and faculty, must wear masks.
* If a student otherwise shows up in your class without a mask, they will be reminded to wear a mask. If student refuses to wear a mask, they will be asked to leave.
- you are ill, DO NOT attend the lecture or the discussion section; notify your IA via email.

Other:

- Recordings of any kind in this class are not permitted to maintain a safe learning environment as we often discuss sensitive issues.
- When attending in person - please ask questions. However, make sure that your comments are directed to the class.
- Turn off your phones and refrain from talking to fellow students during the lecture
- Be considerate to others by not walking in/out of classroom for water/bathroom breaks while the class is in session.
- If you must leave early, please be seated in the aisle seat in the back near the exit

GRADING POLICY**EXAMS**

There are THREE exams in this course, each worth 100 pts. **ALL EXAMS will be administered IN-PERSON.** The final exam will focus on the material presented after the Exam 2 and will include important fundamental concepts from the prior portion of the course.

The use of electronic aids during Exams: unless you are an exceptionally skilled mathematician, you will need a calculator during the exam. Regarding the usage of other electronic devices, please refer to the ACADEMIC DISHONESTY section at the end of this syllabus.

PROBLEM SETS:

15% of your grade will be based on problem sets. There will be 2 problem sets throughout the course, posted in the CANVAS. Submit your work via CANVAS files upload. Late assignments will not be accepted!

Problem Set #1 available on Canvas on Thursday, Oct 7, Due on Tuesday, Oct 12

Problem Set #2 available on Canvas Tuesday, November 23, Due on Thursday, Dec 02

- *To make the allotted assignment time fair to all sections, please email your assignment to your IA by midnight of a due date; late assignment will not be accepted*

Discussion Section QUIZ:

There will be three quizzes given in discussion sections worth 15 points each. If your quiz point total is <45, your IA will have the opportunity to award up to 5 more points based on consistent attendance and participation in discussion section to raise your point total to a maximum of 45. **Credit will only be given for quizzes taken in the section you are enrolled in as shown at the online section enrollment site (<http://sections.ucsd.edu>).** Exceptions to this policy will not be made. It is your responsibility to know what section you are enrolled in!

GRADING

Your final grade will be determined by what percentage of 405 points you earn (no exam or quiz scores may be dropped). Points are available as follows:

Midterm 1, 2	200 pts (100 pts each)
Final Exam	100 pts
Section Pop Quizzes (3) / Section attendance	45 pts
Homework Problem Sets (2)	60 pts
Total Points possible	405

Here are **guidelines for the minimum grade** you will receive based on point totals, including extra credit:

≥ 372 points _____	A	315 – 323 _____	C+
364 – 371 _____	A-	291 – 314 _____	C
356 - 363 _____	B+	283 – 290 _____	C-
332 - 355 _____	B	275 – 282 _____	D+
324 – 331 _____	B-	240 – 274 _____	D

The points / grade scale maybe **adjusted based on the overall class performance.*

After the grading is completed, you can view your scores by clicking on “My Grades” on the Canvas course homepage. At the end of the quarter, final grades will also be posted in the UCSD e-grade system. Re-grade requests must be submitted via email (explaining the error you found in the grading of your exam) with the copy of your exam to your IA **within two weeks of when graded exams were first made available**; no requests will be considered after this date, except for correction of point addition errors.

Taking the Exam:

These exams will be held in person and will be closed-book. The midterms will contain material for that section of the course up to the lecture preceding the exam. The final exam will be cumulative, covering the whole class but focused on the material since the second midterm. Exam scores will be available after grading is complete, and you will be able to pick up your graded exams in your discussion section. Questions concerning exams will be addressed during office hours. 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 take the exam.

If you miss an exam, you will be required to provide documentation of an unavoidable emergency (serious illness, etc.), preferably in advance. Please note that as of this writing (9/20/2021), UCSD’s policy is that “Vaccinated students who have been exposed [to COVID-19] are allowed to attend class and move about campus masked”, which includes attending in-person exams. This does not include people who have COVID symptoms or a positive test result. You can find an up-to-date policy and more details here:

<https://returntolearn.ucsd.edu/return-to-campus/exposure-contact-tracing/index.html> If you are concerned that you would endanger others by attending an in-person exam, please email me as soon as possible to discuss your situation (gbozinovic@ucsd.edu). If you have extraordinary circumstances that make it impossible for you to take an exam in person, please email me as soon as possible. Otherwise, you will receive a 0 on a missed exam.

- To minimize the effect of a time constraint, you will have 2 hrs to complete each exam.
- Once you submit an exam, you will not be able to drop the score or negotiate a reduction of its impact on your grade for any reason (e.g., you decide afterwards you weren’t well enough).
- Requests to reconsider any grading must be submitted via email along with your exam to the IA who graded the question within TWO weeks after graded exam are made available.

Extraordinary Circumstances:

- If you have an illness, injury, or personal crisis that you believe will prevent you from performing adequately on an exam, contact the instructor about this problem before the exam to discuss your options. Your excuse MUST include official documentation (doctor's note).

- If you cannot do this and miss an exam for one of these reasons, you must contact the instructor within 24 hours of the exam to discuss your options. Once you have submitted an exam, you will not be able to drop the score or negotiate a reduction in its impact on your grade for any reason (e.g., you decide afterwards you weren't well enough).

If a section quiz is missed due to a similar sort of problem, contact your IA no later than 24 hours after the missed quiz. The decision for re-taking the quiz will be at your IA's discretion but will adhere to the same policies stated above (see extraordinary circumstances).

Note: depending on the conditions of the pandemic, one or all exams may need to be switched to an alternate format such as additional online quizzes or online exams. If I need to make this change, I will announce it during the quarter.

How to do well in this course.

- Read lecture material BEFORE the lecture
- Attend live lectures! Most of the exam-relevant material will be "highlighted" during lectures
- Turn assignments in on time
- Take your own notes – active note taking is the key to effective learning
- Actively participate in discussion sections
- Ask questions; attend virtual office hours; utilize IAs expertise and assistance
- Do not procrastinate
- Work through the problem sets: **genetics is about probabilities, so it is a *problem-solving science.** It is, therefore, essential to spend time solving problems and applying concepts introduced during lectures. The significant portion of your exams, homework sets, and quizzes will consist of such problems. Learn how to solve problems not just by looking up the answers in the solutions manual.
- When attempting the end-of-chapter exercise and problem sets, you may use the Study Guide and Solution Manual or any other aids on the text website BEFORE seeking clarification during the discussion sessions. This way you will have a good idea of topics that need further explanation and could seek the help of your IA to understand the material.

ACADEMIC DISHONESTY

Please carefully review the "Policy on Integrity of Scholarship" at:

<http://senate.ucsd.edu/manual/appendices/app2.htm>

Academic dishonesty (aka cheating) will not be tolerated in this class. 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 or quiz; allowing another student to copy your work
- altering graded assignments and submitting them for a re-grade

After the grading is completed, you can view your scores by clicking on "my grades" on the TritonEd course homepage. At the end of the quarter, final grades will also be posted here. Re-grade requests must be submitted in writing (explaining the error you found in the grading of your exam) with your exam to Instructor Bozinovic in class **within one week of when graded exams were first made available for pickup**; no requests will be considered after this date, except for correction of point addition errors.

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- allowing another student to copy your work
- altering graded assignments and submitting them for a re-grade

Altering an exam and submitting it for a re-grade is an incredibly bad idea since an electronic record of the submitted exam is available. Any student caught 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 schedule: TENTATIVE, subject to change

Readings - Chapters from Klug *et al.*, Essentials in Genetics

Date	Topic	Chapter
Th 9.23	Course Introduction; Probabilities, Phenotype, Central Dogma	Discussion, 1
Tu 9.28	Monohybrid Cross, Mitosis	3 (37-42), 2
Th 9.30	Meiosis, Dihybrid Cross, Crosses	2, 3 (49-55)
Tu 10.5	Epistasis, Complementation, Pleiotropy	4 (60-68)
Th 10.7	X-linked mutations; HW1 posted	4 (73-85)
Tu 10.12	Penetrance, Imprinting; HW1 due	4
Th 10.14	Sex Determination, Sex Chromosomes	5
Tu 10.19	Dosage Compensation	5
Th 10.21	EXAM 1 – In person, 5-7 PM	
Tu 10.26	Chromosomes, Chromosomal Variation (not on Exam 1)	6
Th 10.28	Chromosomes, Chromosomal Variation (2)	6
Tu 11.2	DNA Structure, Imaging, RLFP	14
Th 11.4	Bacterial and Phage Genetics, Restriction Enzymes	.pdf suppl.
Tu 11.9	DNA Mutations, Regulation of gene expression, Prokaryotes;	14
Th 11.11	No Class – Veterans Day Holiday	
Tu 11.16	EXAM 2 – In Person, 5-7 PM	
Th 11.18	Regulation of gene expression – Eukaryotes	15
Tu 11.23	"RNA Word"; CRISPR and RNAi; HW2 posted	14, 15
Th 11.25	No Class – Thanksgiving holiday	
Tu, 11.30	Cancer Genetics; HW2 due	16
Th 12.02	Evolutionary, Population, and developmental Genomics	seminar
F 12.10	FINAL EXAM 7-10 PM	