

Welcome to GENETICS: BICD 100 Fall 2020

Instructor: Dr. Jessica Rusert (she/her/hers) jrusert@ucsd.edu

Office hours: Fridays 3-4pm PST

IA Office hours:

Adeh - Thursdays at

6pm <https://ucsd.zoom.us/j/91817937973?pwd=MnVWd3BQcTg0OXM0cS9VQjFBTnhUdz09> (Links to an external site.)

Ola - Tuesdays at 9am <https://ucsd.zoom.us/j/98740042542> (Links to an external site.)

Tianxu - Thursdays at 10am <https://ucsd.zoom.us/j/96763737461> (Links to an external site.)

Anna - Mondays at 5pm <https://ucsd.zoom.us/j/99001459531> (Links to an external site.)

Email: I will do my best to respond to emails within 48 hours Mon-Fri. However, if your email is regarding information that can be found on the course site in Canvas I may not reply. This is not because I do not care or want to help you, but because you must learn to be resourceful and use the information that is available. See resources below for technical issues, such as accessing Canvas. For extenuating circumstances, please do not hesitate to contact me and consider including your IA so our team is aware of your situation, though including your IA is at your discretion. Your circumstances will remain confidential and know that we value your privacy. We will then collectively devise a plan for your circumstances moving forward.

I reserve the right to make changes to this syllabus as needed throughout the course. In particular, course topics may shift some. Exam dates and assignment/quiz deadlines will **NOT** change however, to prevent confusion throughout the course.

Overview of the Curriculum

This course aims to develop concepts of genetics as they apply to how information is stored, utilized, and inherited in life. Fundamental concepts include gene and chromosome structure, genetic aberrations, phenotype, chromosome segregation and recombination, gene expression, random mutation, and natural selection. We will learn these concepts by studying their roles in biological systems and will apply our understanding of these concepts to explain and predict a wide range of biological and real-life phenomena including human health, biodiversity, and agriculture. These will be interspersed with topics from current genetic research such as CRISPR gene editing, GWAS studies, cancer genomics, and epigenetics. Below is the general plan for the term though **these may shift some and updates will be made accordingly**. See “Lectures and Assignments” in the [Course Information Module](#) for specific details each week and weekly pages in the [Course Responsibility Module](#).

Week 1 (Oct 5-9): Genes, Mutations, phenotype

Week 2 (Oct 12-16): Dominance Relationships

Week 3 (Oct 19-23): Mitosis, Meiosis, Simple Inheritance

Week 4 (Oct 26-30): EXAM Oct. 26; Gene interaction and Complementation

Week 5 (Nov 2-6) Linkage, Molecular Markers, and GWAS

Week 6 (Nov 9, Veterans Day Nov 11, Nov 13): Quantitative Traits

Week 7 (Nov 16-20): EXAM Nov 16; Gene Editing/CRISPR

Week 8 (Nov 23-25, Nov 27 Thanksgiving Break): Somatic mutations and cancer

Week 9 (Nov 30-Dec. 4): Epigenetics, Chromosomal variation

Week 10 (Dec 7-11): EXAM Dec 7; Genes and Genome Evolution

Final exam Friday Dec. 18, 3-3:50pm

Scheduling and Enrollment

BICD100 classes are scheduled for 3:00 - 3:50 PM MWF for remote learning. Currently, Mondays will be the only synchronous class each week for lectures and exams, with the exception of 2 guests lecturers possibly on Wednesdays this quarter and Oct. 7th. These will be clearly shown on the Modules page under "Course Responsibilities" in the titles of each Week's page. Lectures on Wednesdays and Fridays will otherwise be pre-recorded and ready for you to watch starting at ~3pm PST of that day (though I'm told it can take up to 2 hours for a recording to appear so please be patient if I do not get it recorded by 1pm). Scheduled class time on Wednesdays and Fridays are a good opportunity for you to work with your group or a study group. Wednesdays at 3pm I will meet with the IAs to go over feedback, unless there's a guest lecturer. Fridays at 3pm will be my office hours via Zoom where I'm open to speaking with students about anything related to the class, college, their career thoughts, etc.

Associated 50 min. discussions sections are listed by section below and are mandatory. They will also meet via Zoom. Discussion sections will commence on **Week 1** for icebreakers. Your groups will be assigned based on your enrolled section. If you have a friend in your section that you would like to be in a group with, please email your IA though we cannot guarantee you will be in the same group. Please email me, Dr. Rusert, for extenuating circumstances that prevent you from attending your enrolled section. These must be legitimate and beyond your control, such as living in a vastly different time zone where all of the section times fall in the middle of the night for you. Each IA will add their office hours below once we have received feedback from the pre-class surveys to accommodate as many different time zones as possible. If you need phone numbers to call in for audio during sections, please see the full invitations in Zoom LTI Pro on the left and/or email your IA.

Ola Mostafa R153 (01) Wednesday 5-5:50pm (omostafa@ucsd.edu)

Join Zoom Meeting: <https://ucsd.zoom.us/j/97619820054> (Links to an external site.)

Adeh Vartanian R124 (02) Wednesday 6-6:50pm (avartani@ucsd.edu)

Join Zoom Meeting: Passcode: d2exck

<https://us02web.zoom.us/j/85354586141?pwd=dEFzYjFLSSStkc3IHS1hhSEtJYWtXdz09>
(Links to an external site.)

Adeh Vartanian R115(03) Wednesday 7-7:50pm (avartani@ucsd.edu)

Join Zoom Meeting: Passcode: d9G2TF

<https://us02web.zoom.us/j/81986968969?pwd=dWJFS0Z4SmdhZU1uODJZQ3JpOEpbZz09> (Links to an external site.)

Tianxu Chen R127 (04) Friday 2-2:50pm (tchen@ucsd.edu)

Join Zoom Meeting: <https://ucsd.zoom.us/j/93489556964> (Links to an external site.)

Anna (Xinyue) Chen R105 (05) Fridays 4-4:50pm (xic324@ucsd.edu)

Join Zoom Meeting: <https://ucsd.zoom.us/j/92692472832> (Links to an external site.)

Canvas Learning Management System

The class will be run from the Canvas site. Check the “Course Responsibilities” in Modules each week for what’s required. Generally, there will be a lecture, weekly readings and reading quiz posted Friday and due by the following Monday 3pm, weekly homework due by 11:59pm the following Monday, and weekly feedback surveys posted Friday mornings and due by 11:59pm that night. You will be able to use this course site to download copies of course materials and view your grades as well.

You can use coursefinder.ucsd.edu, to view all of your courses. If you have not used Canvas before, refer to the student help guides and videos, which are located on the left-side menu’s help section (the question mark icon) and in the “Student Support” document posted in the “Technology and Other Support Resources” Module. Should you need any technical assistance with Canvas, please alert your instructor and send an email to servicedesk@ucsd.edu. In the header of the email, please write “Canvas”. Make sure to include your name, course title and section, as well as your contact information in the email body. Instruction on how to access your account for logging on

to UCSD's Canvas sites can be found here: <http://acms.ucsd.edu/students/accounts-and-passwords/index.html> [Links to an external site.](#)

Concurrent enrollment (extension) students are not added automatically. More information for extension students can be found here: <https://extension.ucsd.edu/student-resources/> [Links to an external site.](#)

Grade Scale:

There will be no curve. Consequently, you are not in competition with anyone for a grade. Grades will be based on your percentage in the course. There will not be opportunities to receive extra credit beyond what is assigned/offered in the course. *Do not email me to ask for ways to increase your grade. Do the work, read through how to be successful in this course, and commit to finding and using methods that work for you to learn the material.*

97-100% A+

93-96% A

89-92% A-

85-88% B+

81-84% B

77-80% B-

73-76% C+

70-73% C

67-69% C-

57-65% D

<57 F

Grades: Exams, Assignments and Participation

Your grade for BICD100 will be based on the schematic below. The assignments and section activities will give you opportunities to work with the material and to practice the kinds of problem-solving skills and writing you will need for the exams. Each of the exams will be comprehensive, meaning any material covered up to that point will be fair game. Much of this course builds on itself. What you learn in weeks 1-2 will be needed to understand what you learn in weeks 9-10 for instance.

Course Component	Date	Time	Description	% of Final Grade
Exam 1	Monday Oct. 26	3-3:50pm	Material covered up to the exam	Drop the lowest one=> 69% (each exam then worth 23%)
Exam2	Monday Nov. 16	3-3:50pm	Material covered up to the exam	
Exam 3	Monday Dec. 7	3-3:50pm	Material covered up to the exam	
Final Exam			Comprehensive	
Review Quiz	Oct. 2 nd	Due by 3pm Oct. 5 th	You will take this once individually, and once while working through it with your group	Drop the lowest score => 2%
Review Quiz	Oct 5 th	Due by 3pm Oct. 7 th		
Problem Sets/Homework	weekly	Posted ~Tuesdays ◇ Due each Monday by 11:59pm	May be multi-part or involve different submission types.	Drop the lowest week's score(s) => 13%
Reading Quizzes	weekly	Posted Fridays ◇ Due each Monday by 3pm, other than 1st week and exam weeks then Wed. 3pm	~5 questions based on the required reading for the week	Drop the 2 lowest scores => 5%

Weekly Surveys (including pre-class survey)	weekly	Posted Thursdays due by 11:59pm Fridays	9 surveys (Complete 7/9 to get full credit)	1%
Section Participation	weekly	Due at the end of your section	Complete and submit weekly activities in section (9 total opportunities)	Drop the 2 lowest scores => 5%
Group project	Oct 19	by 11:59pm on 4 Mondays	4 submissions total	5%
	Nov. 2			
	Nov. 23			
	Dec.7			
			Total	100

Readings and Textbook:

Each Friday there will be assigned readings posted (in each Week's page) for the following week and a quiz based on this reading to be completed before class on Monday. Exceptions are: the first week of class and each week of an exam these will be due by Wednesday's class at 3pm. Reading will be assigned from free online sources and primary literature. Use the guide to decide what you need to read based on your current knowledge using whatever resources you choose. The questions are meant to guide your reading.

Pre-class reading assignments and quizzes and are designed to 1) introduce some relevant background material, so you are prepared for class and can have productive discussions in sections/via chat; 2) introduce some relevant primary literature; 3) your quiz responses help me know what material students are struggling with.

In addition, Klug et al. Essentials of Genetics is recommended and available in the bookstore and online (e-copy on Pearson.com for \$34), but it is not required. You may also use older editions of the Klug textbook. These can also be used to answer questions and think about things to consider in the reading guide. You can find the relevant topics using the index/table of contents. Practice problems in textbooks can be an excellent way to test your knowledge!

Generally decent online resources:

1. Nature Scitable Essential Genetics e-book: <http://www.nature.com/scitable/ebooks/essentials-of-genetics-8/contents> (Links to an external site.)
2. Nature Scitable, search for topics and definitions: <http://www.nature.com/scitable> (Links to an external site.)
3. Search the NCBI Bookshelf for specific topics: <http://www.ncbi.nlm.nih.gov/books/> (Links to an external site.)
4. Free Biology Textbook, contains some basic genetics: <https://openstaxcollege.org/textbooks/biology> (Links to an external site.)

Exam format:

Exams will be 50 minutes long, application based, and similar to your weekly homework. You will drop the lowest of the 4, which includes the final. I encourage you to plan to take all 4 exams to assess your progress. This will also protect your grade if you end up in an unanticipated situation where you are unable to take one of them (illness, housing situation changes, etc.). **Make-up exams will not be offered.** Exams will be open book, open note, **NOT open internet or with the help of others**, from class or online. To make it fair, you can use the 4 websites above since some of you do not have a textbook and others do. You will record yourself in Zoom taking each exam, showing both yourself and sharing your entire desktop including while you submit your work. **Failure to do this will result in a zero for that exam.** One of the homework assignments will be submitting a short recording of yourself to ensure you know how to carry this out correctly. Please go here for help: <https://digitallearning.ucsd.edu/learners/learning-remotely/tools.html> (Links to an external site.)

Videos will be selected at random after each exam for review by Dr. Rusert and the IAs. Furthermore, if cheating is suspected based on an answer(s), the video(s) will be fully reviewed.

Discussion boards will be used during the exam to answer questions.

Exams are a way to assess your progress in the class and the class as a whole. Assessments help us understand where individuals or a portion of the class is struggling so that we can address these issues and add in extra support/review. We want this work to be authentic and a fair measure of each student's learning.

Homework/Problem Sets:

Weekly homework due by the following Monday by 11:59pm. You can find what is due on each week in the "Course Responsibilities" Module by clicking the appropriate week's page. I will post homework on Tuesdays. In general, any link that is not active

means the content has not been added/published yet. Many of the pages are laid out already, but will not have active links until we reach that week in the course.

All late problem sets will be assigned a zero grade. You can drop the lowest score of the 10.

We encourage you to work together in study groups/your section groups to discuss the questions. This often helps you better understand the material *even if you are the one explaining the answer*. When working in groups, try not to make the mistake of simply accepting another student's answer and thinking you understand it. You should attempt the problem set prior to going over it with your group. You will always have a better understanding if you have gone through the problem-solving process on your own first. Please list the names of your collaborators on your assignment. Each student must write their own answers, in their own words. Homework will be submitted to Turnitin to check for authenticity.

Discussion Sections:

Attendance is mandatory. Discussion activities (5% of your grade, 3pts each, drop lowest 2 out of 9 total) will complement the lecture material as well as allowing you to review the more challenging material. IAs will also go over homework during sections and answer keys will **NOT** be given out. You can also go over homework in office hours if you cannot attend section. You must attend the discussion section that you signed up for when selecting the class or the one you've been assigned after responding to the section swap email. If you cannot attend your assigned section one week, you can email your IA about making up the activity during their office hours. ***This should be an exception, not the norm and cannot be guaranteed.*** Please let them know ahead of time so they can be prepared!! Section activities must be turned in **at the end of your section** (or the office hours you attend) to get credit. The IA will look them over and issue scores soon after. Late submissions will not be accepted.

Groups and Group Project:

Groups of 5 will be formed based on your enrolled section. Email your IA ASAP if you have a friend in your section you'd like to be in a group with, though a change is not guaranteed. You will work with your group in sections and you will be responsible for a group project divided into 4 parts throughout the quarter.

For the group project you will each be selecting a phenotype or disease to research and most grades will be based on your own work on your chosen topic. You should work to share resources, complete peer reviews, and generally help each other complete the assignments. You will ultimately create a handbook of your group's 5 phenotypes/diseases and create a video on ONE of these as a group. Videos can be slide-based and straight-forward or as creative as you wish. Discussion sections will vote on the best video for their section (or combined sections if enrollment is low) the 10th week of class and each winner will get 1% extra credit toward their final grade.

Practice Problems:

You will have access to old problems/questions from previous classes. These will be posted on the Canvas website. Answers will be posted before each exam, BUT it is important that you attempt the questions before reviewing the answers to truly learn and understand the problems. In addition, as stated above, there are many good questions in text books that are helpful in mastering each topic.

Zoom-cast

Zoom lectures will be recorded and available in the Media Gallery tab in canvas.

Discussion Board

A live discussion board will be available during the exam for clarification questions. Outside of the exam it can be used to ask questions relating to the genetic material we cover or general questions as opposed to emailing the IAs or myself. We will try and review new questions at least once a day. Do feel free to answer questions yourself as well!! Answering each other's questions is a really good way to solidify your knowledge. "While we teach, we learn." ~ Roman philosopher Seneca

Special Needs and Religious Holidays:

Please let Dr. Rusert or your IA know as soon as possible if you have any special needs that we should accommodate or a religious holiday that will conflict with a course activity.

Students' Questions and Feedback:

The IAs and I welcome your questions, suggestions, and comments. We want to get to know you and we appreciate your feedback. Office hours are a great way to voice your concerns, get individual help, and talk about your student life in general. Weekly surveys have been created to get course feedback from everyone in the class on a regular basis as well. IAs will go through feedback from their sections and present highlights and areas of concern in weekly meetings with Dr. Rusert on Wednesdays. When possible, changes in the course will be implemented.

Academic integrity (<https://students.ucsd.edu/academics/academic-integrity/index.html>Links to an external site.)

Integrity of scholarship is essential for an academic community. By taking this course, you are becoming a member of an intellectual community. How you conduct yourself has an impact on your learning and the learning of others. The University expects that both faculty and students will uphold academic integrity and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual(s) to whom it is assigned, without unauthorized aid of any kind. Anyone caught cheating (includes plagiarizing written work, cheating on a test, or changing an answer for a re-grade) **will be reported to the Academic Integrity Office.** See the Class Statement of Values posted in Canvas as well.

Inclusion and accessibility (<http://disabilities.ucsd.edu>Links to an external site.)

Any student with a disability is welcome to contact us early in the quarter to work out reasonable accommodations to support your success in this course. 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 and to the OSD Liaison in the Division of Biological Sciences in advance so that accommodations may be arranged. For further information, contact the OSD at 858-534-4382 or osd@ucsd.edu See the Class Statement of Values posted in Canvas as well.

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/reportbias/index.html>Links to an external site.

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> Links to an external site.

Counseling and Psychological Services (CAPS): 858.534.3755

| <https://caps.ucsd.edu> Links to an external site.

CLASS STATEMENT OF VALUES

(Adapted from Tricia Bertram Gallant, Academic Integrity Office, UCSD)

Below are the values I expect each student in this class, IAs, and myself to uphold throughout the quarter. Acting according to these values ensure we will foster a collaborative and supportive learning environment, despite being online.

VALUES	Upholding this value means that STUDENTS will...	Upholding this value means that the INSTRUCTIONAL TEAM will...
Courage – “the mastery of fear, to do what is right”	<ul style="list-style-type: none"> - Take action when we see something that undermines the values below - Make honest ethical choices even when at personal cost 	<ul style="list-style-type: none"> - Take action when we see something that undermines the below values - make honest ethical choices even when at personal cost
Fairness “Justice cannot be for one side alone, but must be for both. ~Eleanor Roosevelt”	<ul style="list-style-type: none"> - Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams 	<ul style="list-style-type: none"> - Create fair assignments and exams and grade them in a fair and timely manner

- Not seek unfair advantage over fellow students in the course
- Treat all students and collaborative teams equally

Honesty “Honesty is the first chapter in the book of wisdom.
~Thomas Jefferson”

“When honesty is established as a value it allows for and encourages the development of trust”

- Advance the quest for truth and knowledge through intellectual and personal honesty in learning, teaching, research, and service.
- Communicate openly without using deception, including citing appropriate sources

- Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams

- Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams

Respect “Without feelings of respect, what is there to distinguish men from beasts?
~Confucius”

~Confucius”

- Speak openly with one another while respecting diverse viewpoints and perspectives

- Provide sufficient space for others to voice their ideas

- Respect students’ perspectives even while we challenge you to think more deeply and critically

- Help facilitate respectful exchange of ideas

Responsibility “Every member of an academic community – each student, faculty member, and administrator – is responsible for safeguarding the integrity of its scholarship, teaching and research.”

- Complete assignments on time and in full preparation for class

- Show up to class on time and be mentally and physically present

- Give you timely feedback on your assignments and exams

- Show up to class on time and be mentally and physically present

- Create relevant assessments and class activities

- Participate fully and contribute to team learning and activities

Trustworthiness “Trust enables us to collaborate, to share information, and to circulate new ideas freely, without fear that our work will be stolen, our careers stunted, or our reputations diminished.”

- Not engage in personal affairs while on class time

- Be open and transparent about what we are doing in class

- Not distribute course materials to others in an unauthorized fashion

- Be available to all students when we say we will be

- Follow through on our promises

- Not modify the expectations or standards without communicating with everyone in the course