Course Syllabus

Overview of the Curriculum

The science of genetics, launched with the rediscovery of Mendel's Laws in 1900, is very much in the news. Within the subject of genetics, there are more topics than can be covered in one quarter. We've picked out many of the basic concepts that we think are important in a broad introductory survey course.

1) Transmission genetics in higher organisms, using classical analysis of crosses.

2) The molecular nature of genetic variation, and how this determines gene function and expression.

3) The interplay of genetic and environmental factors and how they determine phenotype.

Interspersed will be topics from the news and how this knowledge interacts with current research and our daily lives. By the end of this class you will be able to:

- Use genetic vocabulary and notation.
- Understand genetic principles of inheritance, gene function and mutations
- Apply the principles of genetics and quantitative techniques to interpret and solve biological problems.
- Appreciate the practical application of genetics to human health and agriculture.

Scheduling and Enrollment

BICD100 will meet at 2:00 - 2:50 PM on MWF in York Hall 2722.

An associated 50 min discussion section will be held weekly. It is scheduled to be on zoom each Tuesdays 12:00 - 12:50pm.

Staff Directory and Office Hours

Chris Day	cdday@ucsd.edu (mailto:cdday@ucsd.edu)	Fri 4:00 - 5:00 pm	HSS 1145L
Brian Stack	bstack@ucsd.edu (mailto:bstack@ucsd.edu)	Tue 4:30 - 5:30 pm	HSS 1145L
Yuhan Chen	yuc047@ucsd.edu (mailto:yuc047@ucsd.edu)	Thu 4:30 - 5:30 pm	Muir Biology 1102

Lorin Guo	kuguo@ucsd.edu (mailto:kuguo@ucsd.edu)	Thu 9:30 - 10:30 am	Tata Hall 3102

Canvas Learning Management System

We will be using Canvas to deliver our course materials. You will be able to use this course site to download copies of course materials and view your grades.

Grade Scale:

We do not curve. Consequently, you are not in competition with anyone for a grade.

Grades will be based on your percentage in the course:

90% A (A-, A or A+)

78% B (B-, B or B+)

65% C (C-, C or C+)

55% D

Text and other materials for self-guided study

One textbook is recommended for the course:

Klug et al. Essentials of Genetics, but any general genetics text, even older editions, will be OK as no specific readings will be assigned. Further, **online resources (https://canvas.ucsd.edu/courses/51740/modules/315992)** have been posted on Canvas. See **Course Strategies (https://canvas.ucsd.edu/courses/51740/pages/course-success-strategies)** for more information on how to make the most of the any text book, or online resources, that you have plan to use.

Practice Problems and Review Quizzes

The practice problems and review quizzes are primarily for you to get comfortable with concepts as we progress through the learning objectives.

Practice problems (https://canvas.ucsd.edu/courses/51740/modules/315988): These are NOT graded, there will be separate homework problems. These problems are old homework and

exam questions that I have written in the past. Answers will be posted, BUT, it is important that you attempt the questions before reviewing the answers. In addition, there are many good questions in text books that are helpful towards mastering our learning goals.

Review quizzes (https://canvas.ucsd.edu/courses/51740/modules/315990) : Each quiz is a multi-choice review of the unit material. You will receive 50% for completing the quiz and 100% for getting above 85%. There will be eight quizzes and they are worth 5% of your grade.

Exams, Assignments and Participation

Your grade for BICD100 will be based on your performance on assignments and two exams. The assignments will give you opportunities to work with the material and to practice the kinds of problem-solving skills you will need for the exams. Each of the exams will cover material as described below.

Course Component	Date	Time	Description	Weight %
Mid-term	2/14	Class Time	Material in first half	18
Final Exam	Mon 3/18	3:00-6:00pm	Comprehensive	37
Homework	1/31 2/28	Take home	Upload homework to gradescope on the answer sheet provided. Lowest grade of the four can be dropped. 10 pt assigned to each problem set.	23
Review quizzes	Ad Hoc, after each unit.	Canvas	8 online quizzes.	5
Genetics in the News	1/27 2/10	Take home	Exploring science NEWS and searching for primary literature. Upload to gradescope.	10

	2/25 3/9			
Seminar	By 10th week	Take home	Report on an in-person seminar on a genetics related topic that you attend during this quarter. Upload to gradescope.	5
Pre/Post class assessment	beginning and end of quarter	online	These quizzes are written and proctored by the School of Biological Sciences	2
			Total	100

Exam format:

- Each exam will have short answer questions and some multichoice.
- A one page US letter size, two sided cheat sheet can be used during the exam.

Homework Problems: (Practice Problems (https://canvas.ucsd.edu/courses/51740/modules/315988) are NOT graded Homework)

The four take-home problem sets count for about 23% of your course grade. Note that the lowest score will be dropped.

All late problem sets will be assigned a zero grade.

We encourage you to work together in study groups to discuss the questions, this could help you better understand the material.

If you do choose to work in groups, do not to make the mistake of simply accepting another student's answer and thinking you understand it. You need to attempt the problem set prior to meeting. You will always have a better understanding if you have gone through the problem-solving process.

Please list the names of your collaborators on your assignment. Each student must write her/his own answers, in his/her own words, after working with the group. All homework will be uploaded to gradescope.

Discussion:

The discussion section will be on zoom. Links will be in the "Zoom" tab to the left of canvas. These discussions will be recorded and embedded into the weekly page. There will be a google doc that you can make requests for problem solving examples, or questions you'd like to discuss. We'll go through as much as possible in the 50min that are allocated.

Podcast:

Lectures will be recorded and available in the Media Gallery tab in canvas. They will also be embedded in a lecture pages specific for each section. Links will be found on the weekly page.

Lectures and Assignments:

Date	Week	LECTURE	Assignments
1/8	1	Introduction	About You Survey Due
1/10		Intro - Genetic Variation	
1/12			
1/15	2	**Martin Luther King Day**	
1/17		**Unit1 -** Cell Division	
1/19			
1/22	3	**Unit1-** Mendelian Genetics and how it relates to the cell cycle	Homework 1
1/24			
1/26			
1/29	4	**Unit 2** – Sex determination and Dosage compensation	Genetics in the News (Part1)
1/31			
2/2			
2/5	5	**Unit 3** – Pedigree Analysis	Homework 2
2/7			
2/9		**Unit 4** – Deviations from Mendel's Ratios	
2/12	6		
2/14		**Midterm In Class**	
2/16		**Unit 5** – Linkage and Mapping	
2/19	7	**Presidents Day**	Homework 3
2/22		**Unit 5** – Linkage and Mapping	
2/24			
2/26	8	**Unit-6** – Quantitative Traits	Genetics in the News (part 2)
2/28			
3/1			
3/4	9	**Unit 7** – Mutations	Homework 4
3/6		**Unit 8** – Chromosomal Variation	
3/8			
3/11	10	**Unit 9** – Gene Regulation	Seminar Due
3/12		**Unit-10** – Population Genetics	
3/15			
TBA	Exam Week	Final Review TBA	
3/18		**Final Exam - Mon 3-6pm**	

Course Administration

Dr. Day is the first person to contact for all questions of course enrollment, section changes, grade records, signing up for early make-up exams (allowed only exceptional reasons), and any special

needs.

Piazza Discussion Board

A live discussion boards will be available during lectures for clarification questions.

It can be used to ask questions relating to the genetic material we cover, or general questions. Dr Day and the IA's will try and review the new questions at least once a day.

Do feel free to answer each others questions. Answering each others questions is a good way to solidify your own knowledge.

Special Needs and Religious Holidays:

Please let Dr. Day 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 staff of this course, lecturer and IAs alike, welcome your questions, suggestions, and comments. We want to get to know you, and we appreciate your feedback.

Board of Directors:

We would like to have volunteers from the class to serve as class representatives and meet once a week with Dr Day. This is valuable for us since it allows you, the students, to make constructive suggestions, especially if there are logistical problems or other concerns. In short, student concerns can be aired in a way such that real changes can be made. In our experience this open communication helps the teaching staff and students alike.

Academic integrity (**https://students.ucsd.edu/academics/academic-integrity/index.html (https://students.ucsd.edu/academics/academic-integrity/index.html)**)

Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle 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 lab reports, cheating on a test, or changing an answer for a re-grade) will be reported to the Academic Integrity Office.

Inclusion and accessibility (http://disabilities.ucsd.edu (http://disabilities.ucsd.edu))

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 (mailto:osd@ucsd.edu)

Course Summary:

Date	Details	Due
Tue Jan 9, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991935&include_contexts=course_51740)	12pm to 1pm
Mon Jan 15, 2024	About You #FinAid (https://canvas.ucsd.edu/courses/51740/assignments/755041)	due by 11:59pm
Tue Jan 16, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991936&include_contexts=course_51740)	12pm to 1pm
Tue Jan 23, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991937&include_contexts=course_51740)	12pm to 1pm
Fri Jan 26, 2024	Pre-assessment quiz (2nd chance) (https://canvas.ucsd.edu/courses/51740/assignments/755054)	due by 11:59pm
Sun Jan 28, 2024	Homework 1 (https://canvas.ucsd.edu/courses/51740/assignments/744491)	due by 11:59pm
Tue Jan 30, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?	12pm to 1pm

Date	Details	Due
	event_id=991938&include_contexts=course_51740)	
Wed Jan 31, 2024	Genetics in the news (part1) (https://canvas.ucsd.edu/courses/51740/assignments/744489)	due by 11:59pm
Tue Feb 6, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991939&include_contexts=course_51740)	12pm to 1pm
Tue Feb 13, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991940&include_contexts=course_51740)	12pm to 1pm
Tue Feb 20, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991941&include_contexts=course_51740)	12pm to 1pm
Tue Feb 27, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991942&include_contexts=course_51740)	12pm to 1pm
Sat Mar 2, 2024	Seminar Report (https://canvas.ucsd.edu/courses/51740/assignments/744496)	due by 11:59pm
Tue Mar 5, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991943&include_contexts=course_51740)	12pm to 1pm
Tue Mar 12, 2024	BICD 100 - Discussion (https://canvas.ucsd.edu/calendar?event_id=991944&include_contexts=course_51740)	12pm to 1pm
	BICD100 Post-Assessment (https://canvas.ucsd.edu/courses/51740/assignments/732156)	
	BICD100 Pre-Assessment (https://canvas.ucsd.edu/courses/51740/assignments/732155)	
	Final (https://canvas.ucsd.edu/courses/51740/assignments/744488)	

Date	Details	Due
	Genetics in the news (part2) (https://canvas.ucsd.edu/courses/51740/assignments/744490)	
	Homework 2 (https://canvas.ucsd.edu/courses/51740/assignments/744492)	
	Homework 3 (https://canvas.ucsd.edu/courses/51740/assignments/744493)	
	Homework 4 (https://canvas.ucsd.edu/courses/51740/assignments/744513)	
	Midterm (https://canvas.ucsd.edu/courses/51740/assignments/744495)	