

BIMM110 - Molecular Basis of Human Disease

Course Information, Fall 2020

Overview of the Curriculum

This course presents

- 1) genetic, biochemical, and molecular biological approaches used to identify the molecular basis of human diseases;
- 2) current understanding of selected major human diseases at the molecular and cellular levels;
- 3) successful and possible therapeutic treatments of these diseases.

It is expected that students who take BIMM 110 already have a good background in molecular biology, metabolic biochemistry, and genetics.

Course Objectives:

At the end of the course students should be able to:

- 1) Explain the molecular causes of representative diseases from class;
- 2) Use online resources to discover the molecular basis for diseases that we have not discussed in detail;
- 3) Describe transgenic approaches for treatment and have an understanding of the limitations of these techniques;
- 4) Suggest basic experimental designs model organisms can be used to understand the mechanisms of diseases; for example, explain the basics of transgenic, knock-out, knock-in approaches, and the use of CRISPR.
- 5) Interpret data from experiments similar to those we examine in class and in discussion.

Scheduling and Enrollment

BIMM110 (A00) meets at 9:00 - 9:50 AM MWF.

- Monday lectures will be asynchronous. There will be prerecorded content embedded into the weekly pages.
- Wednesday and Friday lectures will be synchronous. Podcasts for WF will be embedded in the weekly pages too.

Associated 50 min discussion sections are listed by section below. It is advisable that you attend the section, and only the section that you are signed up for. Discussion sections will commence on Monday Oct 5th.

Section	Time	IA
A01	M, 2 pm	Bridget Hua Bai
A02	W, 4 pm	Tina Chang
A03	W, 3 pm	Yoori Cho
A04	W, 5 pm	Tina Chang
A05	F, 10 am	Crystal Ly
A06	F, 11 am	Blaine Safir
A07	F, 4 pm	Johnny Rao
A08	M, 10 am	Brandon Tan
A09	M, 5 pm	Andrea Moore
A10	M, 4 pm	Allison Williams
A11	M, 11 am	Bridget Hua Bai
A12	M, 3 pm	Alicia Moore



A01/A11
Bridget Bai



A02/A04
Tina Chang



A03
Yoori Cho



A05
Crystal Ly



A06
Blaine Safir



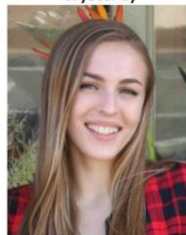
A07
Johnny Rao



A08
Brandon Tan



A09
Andrea Moore



A10
Allison Williams



A12
Alicia Moore

Canvas Learning Management System

We will be using Canvas to deliver our course materials over the Internet. You will be able to use this course site to download copies of course materials and view your **grades**. There will be **weekly pages** where news, assignments and lectures will be available. In addition, the **modules tab** can also be used to find all course materials, including folders for each discussion section.

Self Guided Study

There is no required course textbook, but some [background reading](#) and scientific papers will be posted on Canvas. All **lecture slides** will be posted on the website and are available for download. **Practice problems** are provided; they are representative of the kind of questions you will find on exams and homework. The podcasts for each lecture will be embedded in the weekly pages, but can also be found at the **media gallery**.

Staff Directory

Name	E-mail	Office Hours (find meeting ID in Zoom LTI Pro tab.)
Chris Day	cdday@ucsd.edu	Mondays, Noon-1pm - 934 8071 0692
Bridget Hua Bai	hubai@ucsd.edu	Thursdays, 2-3pm - 970 9637 9502
Tina Chang	t1chang@ucsd.edu	Thursdays, 4-5pm - 915 7145 2144
Yoori Cho	yoc112@ucsd.edu	Fridays, 1-2pm - 931 5941 9532
Crystal Ly	chl750@ucsd.edu	Mondays, 11-Noon - 930 9719 8253
Alicia Moore	atmoore@ucsd.edu	Wednesdays, 10-11am - 977 4951 6134
Andrea Moore	axmoore@ucsd.edu	Fridays, 1-2pm - 931 5941 9532
Johnny Rao	jxrao@ucsd.edu	Thursdays, 4-5pm - 915 7145 2144
Blaine Safir	bsafir@ucsd.edu	Thursdays, 2-3pm - 970 9637 9502
Brandon Tan	bjt005@ucsd.edu	Mondays, 11-Noon - 930 9719 8253
Allison Williams	apw010@ucsd.edu	Wednesdays, 10-11am - 977 4951 6134

Grade Scale:

We do not curve. Consequently, you are not in competition with anyone for a grade. This means it is advantageous for you to help each other to prepare for the exams. Study groups are encouraged.

Grades will be based on your percentage in the course, if you get above the cut off lines below, it guarantees you at least the minus grade. Grades boundaries within the A, B or C categories will be assigned based on natural gaps in the class progression. In addition, myself and the IA's will look at individual students to determine exactly where to place these boundaries. Improvement throughout the quarter will be viewed in a beneficial way.

> 90%	(A-, A or A+)
> 79%	(B-, B or B+)
> 67%	(C-, C or C+)
> 55%	D
0-55%	F

Assessment: Exams, Assignments and Participation

Your grade for BIMM110 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.

Course Component	Date	Time	Notes	% Points
Mid-term Exam	Nov 2nd	in class		15
Final Exam	Dec 16th	8am-11am		30
Homework	week 3, week 4, week 6, week 8,	Drop in assignment box on Canvas before posted deadline	Lowest grade of the four can be dropped. 15 pt assigned to each problem set.	25
Gene Therapy Assignments	Week 5 Week 9	Drop in assignment box on Canvas before posted deadline	Follow instructions in the assignments. Read both before starting.	20
Go to a talk	All quarter	Drop in assignment box on Canvas	Will need to be a zoom talk. Can be at any university.	10
			Total	100%

Homework: ([Practice Problems](#) are not homework)

The four take-home **homework assignments** count for 25% of your course grade (15 points each, total 45 points). Note, that the lowest score will be dropped.

Return the completed problem sets in the assignment drop box on Canvas BEFORE the posted deadline. They will be graded by your IA. Late assignments will be accepted but are subject to a 10% reduction for each day late.

We encourage you to work together in study groups to discuss the questions and help you understand the material. Use office hours as needed too. If you do choose to work in groups on the homework, please list the names of your collaborators on your assignment. Each student must write their own answers, in their own words, after working with the group. Try not to make the mistake of simply accepting another student's answer and thinking you understand it. You have a better understanding by going through the problem-solving process.

Discussion Board

This forum can be used to ask questions relating to the 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 really good way to solidify your knowledge.

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.

To minimize the amount of class time taken up with administrative details, all news and information of general interest will be posted on the Canvas announcement board. It will be your responsibility to consult the announcements routinely.

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.

Student Representatives:

We would like to have about nine volunteers (one from each section) from the class to serve as class representatives and meet after lecture once a week. This is valuable for all of us since it allows students to make constructive suggestions if there are logistical problems or other concerns. In short, student concerns can be aired in a way that real changes can be made. In our experience this open communication helps teaching staff and students alike.

Academic integrity (<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>)

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

Date	Week	LECTURE	Assignments
10/2	0	Introduction	
10/5	1	Topic: Gene Function	
10/7			
10/9			
10/12	2	Topic: Gene Function	
10/14		Topic: Genetic Tools	
10/16			
10/19	3	Topic: Genetic Tools	Homework 1 Due
10/21		Topic: Colorblindness	
10/23		Alumni Guest - Kevin Matchett '96	
10/26	4	Topic: Achromatopsia	Homework 2 Due
10/28			
10/30			
	Weekend	Exam Review TBA	
11/2	5	Midterm	Disease of Interest (Molecular Basis) Due
11/4		Topic: Achondroplasia	
11/6			
11/9	6	Topic: Breast Cancer	Homework 3 Due
11/11		Veterans Day	
11/14		Topic: Breast Cancer	
11/16	7	Topic: Epigenetic Diseases	
11/18			
11/20			
11/23	8	Topic: Charot Marie Tooth (CMT)	Homework 4 Due
11/25			
11/27		Thanksgiving	
11/30	9	Topic: Cystic Fibrosis	Disease of Interest (Therapy)
12/2			
12/4			
12/7	10	Topic: Trinucleotide Repeat	Seminar Report Due
12/9			
12/11			
	Exam Week	Final Review TBA Final Exam Dec 16th 8am-11am	