Welcome to BIMM110: Molecular Basis of Human Disease!

Week	Monday lecture	Wednesday lecture	Friday lecture	Wed, Thu, Fri sections
0			**Sept 27** Intro to class and to Cystic fibrosis Read: The syllabus and Atul Gawande "Better" Ch. 1 (posted on Canvas). Take quiz	
1	**Sept 30.** The function of CFTR. Effects of mutations. Watch videos (posted on Canvas) Take Canvas quiz	**Oct 2** Small molecule drugs that target CFTR. Read: Rey, Bonk, Hadjiliadis (2019). Take online quiz	**Oct 4** Discussion of Schwank et al. (2014) Cell Stem Cell. Group worksheets due at the end of class	Groups form. How to read a scientific paper. Groups work on Schwank (2014) Cell Stem Cell. Bring homework 1 to section.
2	**Oct 7** CRISPR: the mechanism Watch Doudna's video (Canvas). Take online quiz	**Oct 9** Gene therapy. Use of CRISPR to cure CF: opportunities and challenges	**Oct 11** Schwank et al. (2014): limitations, future directions. Group worksheets due at the end of class	**CRISPR in** Schwank et al. (2014). Groups develop their honor code of group work. Take home exam due online by Monday, Oct 14, 8AM
3	**Oct 14** Duchenne muscular dystrophy. Watch video (posted on Canvas), take online quiz	**Oct 16** Gene therapies for Duchenne muscular dystrophy. Read: Amoasii (2018) Science – Figs 1and 2 and the associated text. Take online quiz	**Oct 18** Read: Amoasii (2018) Science, rest of the text. Group worksheets due at the end of class	Exam prep: discussion of the take home exam. Groups work on proposal (see Oct 21)
4	**Oct 21** CF, CRISPR, DMD: questions, future directions. Groups submit one proposal of a future experimental direction for CF or DMD. The proposal is due on Sunday Oct 20, before 11:59pm.	**Oct 23** **Midterm 1. Topics: CF, CRISPR, DMD**	**Oct 25** Guest speaker. Alzheimer's disease Read: Holtzman et al (2011) Alzheimer's Disease (pages 1-5). Take online quiz	**No sections this week** **Pre-exam OH TBA**
5	**Oct 28** Amyloid-β peptide in AD. Read: Polanco et al., 2017, pp. 1-7	**Oct 30** The role of tau in Alzheimer's Disease. Read: Polanco et al., 2017, pp. 7-14	**Nov 1** Alzheimer's Disease: Kumar et al. and recent changes in paradigm	How not to plagiarize? Presentation and exercises. Groups work on the project: what should be the focus of the AD treatments in the future?

6	**Nov 4** Mystery disease	**Nov 6** Mystery disease, contd.	**Nov 8** Guest speaker: C. Sigurdson	Groups work on the project.
7	**Nov 11** No class: Veterans' Day	**Nov 13** Guest speaker. Chronic Traumatic Encephalopathy (CTE)	**Nov 15** Read CTE paper, SciTC (Canvas). Take online quiz	Groups finalize their project.
8	**Nov 18** Neurodegenrative diseases: questions and future directions	**Nov 20** Midterm 2	**Nov 22** Can new CRISPR technique cure malaria?	Thu, Fri sections discuss Gantz et al. in Science in the Classroom
9	**Nov 25** Active Genetics	**Nov 27** Insulin secretion and type 1 and Type 2 Diabetes: Watch two videos.	**Nov 29** No class: Thanksgiving	Wed sections discuss Gantz et al. in Science in the Classroom
10	**Dec 2** Obesity-Insulin resistance-Metabolic syndrome connection.	**Dec 4** Paper by Vijay-Kumar et al., 2010 "Metabolic Syndrome and Altered Gut Microbiota"	**Dec 6** Summary and future directions	Exam prep
	Final exam: Tuesday, December 10, 11:30am-2:30pm			

COURSE GOALS:

1. Learn about the molecular mechanisms and the available/emerging treatments of several representative human diseases
2. Become better readers of scientific papers: understand them, evaluate scientific evidence presenting in them, identify questions that remain to be answered, and possible ways to answer them
3. Develop understanding of some of the techniques used in molecular biology and biomedical sciences
4. Become more comfortable working in a team
5. Become better in communicating scientific ideas orally and in writing

LEARNING OBJECTIVES:

AT THE END OF THIS COURSE, YOU SHOULD BE ABLE TO:

1. Explain the current understanding and the available treatments of several representative human diseases
2. Demonstrate understanding of scientific papers we will read in this course
3. Demonstrate ability to interpret data similar to the data presented in these papers
4. Demonstrate understanding of the techniques we will learn about and the ability to design experiments using these techniques

5. Demonstrate ability to communicate your ideas in writing in exams and orally, in class and in discussion sections
6. Demonstrate ability to work productively as a team

LECTURES:
MWF 11:00pm-11:50am, Peterson 108

OFFICE HOURS:
Tuesdays, 11am-12pm, York hall 2300

DR. TOUR:
I will do my best responding to emails that require short answers (unfortunately, I get over a hundred of email each day and my reply may be delayed). For questions that require explanations or urgent answers, please see me in my office hours or right after class – I am more than happy to answer your questions then. If you are having an administrative issue, concerning your section, your group, your grade, please contact the IA who is in charge of that area (please see below):

INSTRUCTIONAL ASSISTANTS (IA'S):

IA'S NAME	EMAIL	OFFICE HOUR	LOCATION
Nazanin Ahmadian	nahmadia@ucsd.edu	THU 12-1PM	Muir Biology Room 1102
Paige Ferguson	lpfergus@ucsd.edu	FRI, 12:30-1:30PM	HSS 1145L
Victoria Shi	c9shi@ucsd.edu	MON, 3:30-4:30PM	PC theater, lobby
Xaver Audhya	xaudhya@ucsd.edu	TUE 2-3PM	NSB, 5th floor, kitchen, directly left to the elevator

*You are welcome to attend office hours of all IA's!

- For questions about sections and general course questions, please contact Paige Ferguson (lpfergus@ucsd.edu**)**
- For questions about grading, please contact Victoria Shi (c9shi@ucsd.edu)
- For questions about groups, please contact Xaver Audhya (xaudhya@ucsd.edu)

SECTIONS:

IA	Section number		Day	Time	Place	Room
Nazanin Ahmadian	983661	A01	W	1:00p-1:50p	WLH	2112
Nazanin Ahmadian	983662	A02	W	5:00p-5:50p	CENTR	217B

Paige Ferguson	983663	A03	Th	7:00p-7:50p	WLH	2114
Paige Ferguson	983664	A04	Th	8:00p-8:50p	WLH	2114
Xaver Audhya	983665	A05	F	9:00a-9:50a	HSS	2150
Victoria Shi	983666	A06	F	4:00p-4:50p	HSS	2150
Victoria Shi	994860	A07	F	3:00p-3:50p	HSS	2150

HOW THIS COURSE WILL BE TAUGHT?
This is a hybrid class: learn the basics before lecture, so we can get to advanced material in class. Sections are very important part of this course: this is where you will test your learning by solving problems and explaining the material to your group. Unless stated otherwise on the syllabus, the sections are mandatory. All lecture slides will be posted on the website and are available for download after class. The lectures will be also videocasted,

TEXTBOOK There is no required course textbook. Instead, we will use review articles, original research papers, and reliable websites.

REQUIRED MATERIALS: iClickers (used or borrowed OK)

GRADING
The grades in this course will not be curved. Overall course letter grades will be assigned using the following scheme:
90-100% A (A-, A, A+)
80-89.95% B (B-, B, B+)
67-79.95% C (C-, C, C+)
50-66.95% D
0-49% F

Grades will be determined as follows:

- Midterms: 15% each (if your final exam grade is higher than either one or both of the midterms, it will replace the lower midterm/s grade)
- Final exam (cumulative, all material covered): 40 %
- Online quizzes before class 7%
- Group work 15%
- Section homework 3%
- iClicker questions (participation) 2%

- Section attendance and participation 3%

Exams: Exams are open notes, open papers (anything hard copy), but closed electronics. Exam dates are listed in the course schedule. You can miss one or both Midterms – and have those points come from your final exam. However, I strongly recommend taking the midterms, because they are a great low-stress practice. Since it takes several days to write an exam, I will not be able to offer make-up exams. Please check your schedule and make sure that you are available on the date of the final exam. If you have a conflict with the final exam in another class, please drop this or the other class. If you are having a family or medical emergency during the final exam, please provide documentation (e.g., emergency room paperwork) and contact me as soon as you can to schedule a comprehensive oral exam.

Online quizzes: Based on readings and videos and due before class on Canvas. Two worst or missing quizzes will be dropped

Sections homework: Based on papers and is due at the beginning of the section as a hard copy. They will be graded as follows: 2 = (S) Satisfactory, 1 = (I) Improvement needed, 0 = (N) No credit.

iClicker questions: These are scored based on participation (not whether you answered them correctly). To get full credit, you need to answer (click) to at least 85% of the green box questions (the count will start on Friday, Oct. 4the, *but* you can start accumulating points starting week 1). This factors in times when you may forget iClicker or have malfunctioning battery – as long as you attend and participate regularly, you will be OK.

Sections participation grade: We will have eight mandatory sections. You will receive 1 pt for attending a section and an additional 1 pt for actively participating (answering question/s) in section. You will need 12 pts to receive an A in this category.

Group work: In class participation: In each class, you will discuss things with your group. After such discussion, I will call on students to report for their group. I don't expect you to always give the correct answer – here you will be evaluated based on your participation and effort. Attend and respond consistently when called (or even better – volunteer to respond) and you will be fine. Group projects: will require active and serious participation of all group members. More details to follow.

STUDENTS WITH DISABILITIES Reasonable accommodations will be provided for qualified students with disabilities. If you have any disability that may impair your ability to complete the course successfully, please contact me during the first two weeks of the course.

ACADEMIC INTEGRITY

We take academic integrity very seriously. Cheating undermines honest effort and hard work by other students. It will not be tolerated. Cheating on exam, submitting someone else's work as your own, clicking in for another student, copying all or parts of someone else section paper are all examples of academic dishonesty. Please talk to the instructor or the IA immediately if you learn of any incidents of academic dishonesty

UCSD Policy of Academic Integrity, student's responsibilities:
Students are expected to complete the course in compliance with the instructor's standards. No student shall engage in an activity that involves attempting to receive a grade by means other than honest effort; for example:

- No student shall knowingly procure, provide, or accept any unauthorized material that contains questions or answers to any examination or assignment that is being, or will be, administered.
- No student shall complete, in part or in total, any examination or assignment for another person. This also includes asking someone else to do the iClicker voting for you. In this case, both students will be reported to the Academic Integrity office.
- No student shall knowingly allow any examination or assignment to be completed, in part or in whole, for himself or herself by another person.
- No student shall plagiarize or copy the work of another person and submit it as his or her own work.
- No student shall employ aids excluded by the instructor in undertaking course work or in completing any exam or assignment.
- No student shall alter graded class assignments or examinations and then resubmit them for regrading.
- No student shall submit substantially the same material in more than one course without prior authorization.

Completing paper assignments: using sentences from scientific papers and websites is plagiarism (this includes copying and pasting sentences and changing a few words in them). Paper assignments will be submitted to Turnitin. **If plagiarism is detected, your assignment will receive an automatic 0 (no exceptions).** To avoid plagiarism, be sure to first understand what you are about to write. Then write in your own words. If you do so, your text will not be similar to authors' text. If you are having difficulties with writing based on scientific articles, please talk to the IAs or to me.

Consequences of cheating:

Cases of cheating will be reported to the Office of Academic Integrity, who will forward them to the Dean of the student's college. In addition, the grade for the assignment in which the cheating occurred will be an 'F'. Cheating on exam will result in 'F' in the course, as well as in administrative consequences. To learn more, please read:
https://academicintegrity.ucsd.edu/process/consequences/index.html

HOW TO SUCCEED IN THIS CLASS

- ❖ Do the assigned reading. Serious engagement with the material before class will lead to significantly higher gains in class
- ❖ Be proactive, reach out and get help! If you are having troubles with any part of the course material, talk to me or the IA and come to our office hours. Please don't wait! We care about the success of each and every student and we want to help.
- ❖ Critical thinking is hard. Work with your group or form a study team, and put your collective intelligence to work. Come to my and IA's office hours (and sections) and ask questions. Don't be discouraged if you don't understand everything: you are here to learn.
- ❖ Plan ahead. If you anticipate that you'll need help with homework or with exam prep, allow yourself enough time to attend office hours and get your questions answered. I or the IA will

not be able to answer last minute questions emailed to us few hours before exam. To get best help, see us in person.

- Attend classes and sections. Do the section and in class activities. It takes time to build up knowledge and skills, don't leave it to the last minute. Cramming the night before the exam will not work in this class.

Good luck! We want all of you to succeed!