

Welcome to BIMM110: Molecular Basis of Human Disease!

Week	Monday lecture	Wednesday lecture	Thursday section	Friday lecture
1	Jan 7 Intro to class and to Cystic fibrosis Read: Atul Gawande "Better" Ch. 1 (posted on Ted). Take Ted quiz	Jan 9 Molecular mechanism of CF Watch videos (posted on Ted) Take Ted quiz	Jan 10 Groups form How to read a scientific paper Read, quiz on paper by Schwank (2014) Cell Stem Cell	Jan 11 Discussion of Schwank et al. (2014) Cell Stem Cell
2	Jan 14 Read w/ focus on mutations: Fajac and De Boeck (2016)	Jan 16 CRISPR: the mechanism Watch Doudna's video (Ted)	Jan 17 CRISPR in Schwank et al. (2014)	Jan 18 Schwank et al. (2014): limitations, future directions
3	Jan 21 No class, Martin Luther King Jr Day	Jan 23 Guest speaker: Marco Weinberg (Vertex) Read: Davis (2015)	Jan 24 Exam prep	Jan 24 Summary: CF and CRISPR
4	Jan 28 Malaria Read: TBA	Jan 30 MCR Read: TBA	Jan 31 Gantz et al. in Science in the Classroom	Feb 1 Can UCSD cure Malaria?
5	Feb 4 Midterm Topics: CF, CRISPR, Malaria, MCR	Feb 6 Duchenne muscular dystrophy Read: review	Feb 7 Read: Amoasii (2018) Science	Feb 8 Gene therapies for Duchenne muscular
6	Feb 11 Mystery disease	Feb 13 Mystery disease, contd.	Feb 14 Paper: TBA	Feb 15 Guest speaker: C. Sigurdson
7	Feb 18 No class: Presidents' Day	Feb 20 Alzheimer's Read: TBA	Feb 21 Kumar (2016) Science Translation Medicine	Feb. 22 A β peptide: friend or foe?
8	Feb. 25 Alzheimer's: summary	Feb. 27 Chronic Traumatic Encephalopathy (CTE)	Feb. 28 Read: CTE paper, SciTC	March 1 CTE: future directions
9	March 3 Insulin secretion and type 1 Diabetes. Watch video on Ted	March 5 Type 2 Diabetes: Watch video 2 (Ted)	March 6 Exam prep	March 8 Molecular mechanisms of Diabetes. Paper TBA
10	March 11 Obesity-Insulin resistance-Metabolic syndrome connection. Paper TBA.	March 13 Diabetes medications	March 14 Exam prep	March 15 Summary and future directions

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 Sequoyah Hall 147

OFFICE HOURS:

DR. TOUR: Tue, 1-2pm, York 3080E

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.

IA: Alexzander Sharp (arsharp@ucsd.edu)

OH:

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, be sure to register them on TritonEd)

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:

- Midterm: 20% (if your final exam grade is higher than the midterm, it will replace the midterm grade)
- Final exam (cumulative, all material covered): 60%
- Online quizzes before class 5%
- Section homework 5%
- iClicker questions (participation) 5%
- Section participation 3%
- Group work 2%

Exams: Midterm: Feb 4, in class. Final exam: TBA. You can miss the Midterm – and have those points come from your final exam. However, I strongly recommend taking the midterm, because it's 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 TritonEd. 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. Need 10 pts to receive an A in this category.

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 January 18th, *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: You will receive 1 pt for attending a section and an additional 1 pt for answering question/s in section. You will need 13 pts to receive an A in this category.

Group work: 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.

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 week 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's 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://students.ucsd.edu/academics/academic-integrity/consequences.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!