# BIMM110
# Molecular Basis of Human Disease

Spring quarter, 2020
Last Updated [April 1, 2020]

*Important Note:* *This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in a course announcement or through email.*

## Course Overview

Welcome to BIMM110, Molecular Basis of Human Diseases. Under the very unusual circumstances, BIMM110 this year will be given fully online throughout the spring quarter. We will spend the first week getting everybody situated so that we can all participate online. Lectures will start in the second week of the course.

Once we get started with the materials, we have a lot of interesting things to cover. This course will discuss 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:

Cells in our body are doing amazing jobs to conduct all the processes that you have learned so far in Molecular Biology, Cell Biology, Structural Biology, Metabolic Biochemistry, and Neuroscience classes and even more, to sustain life. Over the last centuries, tremendous advances have been made to understand how each individual event occurs accurately, coordinately, properly, and timely manner. Researches in biology and medicine have made incredible progress over the past 50 years and sequence the entire human genome became a realistic tool for identification or diagnosis of diseases.

We are now in the era that the length of time that takes to translate basic research in molecular biology into development of new drugs and more effective treatments has been and will continue to be shortened. At the same time, we have witnessed tremendous growth in pharmacological and biotechnology industries over the past decades.

In this class, you will review how cellular processes coordinate with each other to sustain life and learn what happens if a specific process or cellular mechanisms fail to occur properly. As we progress more understanding of molecular mechanisms of cellular processes, we hope you to see how scientists can unveil mysteries of currently untreatable diseases or provide understanding for illness that lack information.

## Instructional Team

*Instructor*

**Maho Niwa, Ph.D.**
**Professor**
**Division of Biological Sciences,**
**mniwarosen@ucsd.edu**
**Virtual Office Hours:**

## Instruction Assistants

| | | | |
|---|---|---|---|
| *Benjamin Cho* | *bsc007@ucsd.edu* | **Virtual Office hour** | *Thursday 8:30-9:20 am* |
| *Janie Park* | *jep066@ucsd.edu* | | *Tuesday 2:00-2:50 pm* |
| *Allyssa Strohm* | *astrohm@ucsd.edu* | | *Tuesday 11:00-11:50 am* |
| *Jasmine Zemlin* | *jzemlin@ucsd.edu* | | *Monday 3:00-3:50 pm* |
| *Melody Yang* | *yiy223@ucsd.edu* | | |

**Sections:**    Below are the scheduled online sections. Further details will be announced.

| | | | |
|---|---|---|---|
| #1 | Monday | 12:00-12:50 am | Virtual section |
| #2 | Monday | 3:00-3:50 am | Virtual section |
| #3 | Monday | 2:00-2:50 am | Virtual section |
| #4 | Wednesday | 4:00-4:50 am | Virtual section |
| #5 | Thursday | 5:00-5:50 pm | Virtual section |
| #6 | Friday | 8:00-8:50 am | Virtual section |

In Spring 2020, all instruction at UC San Diego will be conducted in a remote format. In general, this means the class will include a series of real-time and recorded sessions, in addition to learning activities and opportunities to connect with the instructional team and other students. Just as with a regular course, it is expected that you will spend 12 of hours per week on this course. In a remote environment, this time will be consumed in a variety of tasks per week.

## Course Policies

*Classroom conduct:* While all the course materials will be offered on-line rather than in the classroom setting, general policies remain the same. Please refrain from all unnecessary use of electronics, side conversations, and multi-tasking including eating, newspaper reading during the live sessions. Please turn off your cell phones in the classroom and be respectful of classmates. You are invited to participate in creating an environment of mutual respect and intellectual productivity by listening and speaking with an open mind.

*Make up exams and lateness:* A student may not take a make-up test unless she/he has an excused absence.  Excused absences are given only with presentation of a valid medical or emergency excuse (for self or family member) in writing although medical doctor's note will not required for this year. Any other failure to take an exam when it is scheduled will result in no credit for the exam. There are absolutely no makeups for the final exam unless you meet the conditions set out in the undergraduate handbook.

*Accommodations:* Anyone in need of classroom or exam accommodations for a disability is encouraged to contact the Office for Students with Disabilities and should inform me as soon as possible.

*Academic integrity:* Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating, or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in the class and suspension or dismissal from the University. So, think carefully before you act. Before you act, ask yourself the following questions: a: is my action honest, fair, respectful, responsible, and trustworthy, and b) is my action authorized by the instructor? If you are unsure, don't ask a friend, ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at academicintegrity.ucsd.edu. *(Source: Bertram Gallant, T. (2017). Teaching for integrity. UC San Diego Academic Integrity Office.)*

Absolutely no cheating will be tolerated. All suspicions of integrity violation will be reported to the Academic Integrity Office according to university policy. The Policy on Integrity of Scholarship (academicintegrity.ucsd.edu) list some of the standards by which you are expected to complete your academic work, but your good ethical judgment (or asking me for advice) is also expected as we cannot list every behavior that is unethical or not in the spirit of academic integrity.

Those students found to have committed academic misconduct will face administrative sanctions imposed by their college Dean of Student Affairs and academic sanctions imposed by me. Students can also face suspension and dismissal from the University; those sanctions are not at my discretion. Academic sanctions can range from an F on the assignment to an F in the class. The appropriate sanctions are determined by the egregiousness of the Policy violation. Students who assist in or are complicit with cheating could also be in violation of the Policy. Thus, students who become aware of their peers either facilitating academic misconduct or committing it should report their suspicions to me for investigation.

**For further information:**
https://academicintegrity.ucsd.edu/index_old.html

# Communication Guidelines

As we move through the quarter, you might have questions about the course structure, content, or general inquiries for the instructional team.

If the question is related to course structure, please be sure to read the syllabus and look through the course on Canvas before asking the instructional team. If you have a general course question (e.g. not confidential or personal in nature), please post it to the discussion site. We will announce the name of the discussion in the Canvas course site. I or one of the IAs will post answers to all general questions there (typically within 1 business day), so all students can access the response. You are also encouraged to answer each others' questions as well.

For all other questions, please contact me directly via Email. Please be sure to include a descriptive subject, with [BIMM110] at the front of the subject (e.g. [MATH 101] Request for individual meeting).  I will attempt respond to inquiries within 1-2 business day.

## Netiquette

Netiquette is a set of rules for behaving properly online. Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Working as a community of learners, we can build a polite and respectful course community. The following netiquette tips will enhance the learning experience for everyone in the course:

- Do not dominate any discussion.
- Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Popular emoticons such as    or / can be helpful to convey your tone but do not overdo or overuse them.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Never make fun of someone's ability to read or write.
- Share tips with other students.
- Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.
- Think and edit before you push the "Send" button.
- Do not hesitate to ask for feedback.
- Using humor is acceptable

Adapted from:
*Mintu-Wimsatt, A., Kernek, C., & Lozada, H. R. (2010). Netiquette: Make it part of your syllabus. Journal of Online Learning and Teaching, 6(1). Retrieved from* [http://jolt.merlot.org/vol6no1/mintu-wimsatt_0310.htm](http://jolt.merlot.org/vol6no1/mintu-wimsatt_0310.htm)

# Textbook, Course Materials & Technology

All the lectures will be podcasted and lecture notes will be posted on UCSD Canvas.
Students will read primary research papers prior to attending some of the sections and papers will be posted on UCSD Canvas ahead of time.

## Canvas
Our course will be hosted on the Canvas learning management system ([https://canvas.ucsd.edu](https://canvas.ucsd.edu)). Once you login with your UC San Diego username and password, you will be able to access additional course materials, scheduled sessions, opportunities for interaction and more.

*Tip:* You can download the Canvas Mobile App and connect to "UC San Diego" to access your courses on your Android or iOS device: https://community.canvaslms.com/docs/DOC-4048

## Zoom
Our course will make use of Zoom for real-time office hours, course sessions, and group collaboration. Learn more and download the Zoom Client for Meetings, and/or the Zoom Mobile Apps at https://ucsd.zoom.us/

## Course Technology Requirements
To participate in this course, you will need the following:
- A laptop or desktop with a current operating system and internet access
- You will also need access to the following tools to fully participate in this course:
  - Webcam (for video conferencing through Zoom)
  - Microphone (for audio conferencing through Zoom)
  - A stable internet
  - Current browser

# Grading Information

This course will have two exams, midterm and final exams. The midterm exam will be given during the normal lecture time, unless you make a specific arrangement ahead of time. (Normally, all the students enrolled in this class are expected that you are able to attend all the lectures on the specified date by the University. But, some of you may encounter a situation that is out of your control and un-able you to take the exam during the designated time. Under such circumstances, you are required to contact professor Niwa to make a specific arrangement ahead of time. An inability to take two exams for any reasons except those addressed above will not warrant requests for make up exams.

All the exams will be closed book/closed computer/electronic devices except accessing the exam questions on-line. Questions will be derived from lectures and problem sets to test the understanding of the materials.

## Scoring Breakdown

| | |
|---|---|
| Midterm Exam   (May 5,2020 9:30 am-10:50 am) | 35% of the final grade |
| Final Exam      (June 9, 2020 8:00 am- 10:59 am) | 50% of the final grade |
| Quiz, Discussion, and Section participation | 15 % of the final grade |

## Policy on Late or Missing Work
*Be sure to pay close attention to deadlines – there will be no make-up assignments or quizzes, or late work accepted without a serious and compelling reason and instructor approval.*

## Grading Scale
**A** = 80-100%      **B** = 70-79%      **C** = 55-69%      **D** = 45-54%      **F** = 44%-below

## *Pass/No Pass Option*

With guidance and support from the Academic Senate, due to changes in campus operating status during the 2019 Novel Coronavirus (COVID-19) pandemic, several temporary academic exceptions have been approved for SP20. These are detailed on the Academic Senate homepage. Please review information in its entirety as grading options and the add/drop/change to grading option deadlines for SP20 have been adjusted.

The Division of Biological Sciences will allow P/NP grades earned during spring 2020 to be applied toward major and minor degree requirements. All students must continue to have a 2.0 major or minor GPA at time of graduation. Please note that if a student elects the P/NP grading option in WebReg, in order to earn a P grade in a course, a student must earn the equivalent of a C- or better.

Students should consider this option carefully and consult with their department and college advisors, financial aid advisors, Athletics, and graduate/professional school advisors about their individual circumstances prior to any final election for their grading options or course schedule. Students are strongly encouraged to think about any long term ramifications of selecting a non-letter grade.

Student inquiries related to major requirements can be directed to Biology Advising through the Virtual Advising Center (https://biology.ucsd.edu/education/undergrad/advising/index.html#Virtual-Advising-Center-(VAC))

## *Key Dates for Spring Quarter 2020*
- The add deadline is extended to the end of Week 3.
- The drop deadline, without a W, is extended to the end of Week 5.
- The undergraduate drop deadline, with a W, is extended to the end of Week 7.
- The graduate student drop deadline, with a W, remains at the end of Week 9.
- Undergraduates may petition to drop a class or withdraw from the University after the end of week 7 and by the end of Week 10 for emergency reasons. These petitions are decided by the college provost.
- Graduate students may petition to drop a class or withdraw from the University after the end of week 9 and by the end of Week 10 for emergency reasons. These petitions are decided by the Dean of the Graduate Division.

## Schedule:

Week 1
March 31, Lecture 1:          Welcome to BIMM110
April 2, Lecture 2:           Welcome to BIMM110

Week 2
April 7,  Lecture 3:          Human Disease History and Today
April 9,  Lecture 4:          Down Syndrome

Week 3
April 14, Lecture 5:          Robertsonian Translocation
April 16, Lecture 6:          Hemophilia

Week 4
April 21, Lecture 7:          Cystic Fibrosis
April 23, Lecture 8:          Anthrax

Week 5
April 28,   Lecture 9:        Cholera
April 30,   Lecture 10:       Epigenetic diseases, X-inactivation

Week 6
May 5,   Lecture 11:          Midterm Exam (in class)
May 7,   Lecture 12:          Coronavirus

Week 7
May 12, Lecture 13:           Polio Virus
May 14, Lecture 14:           Evidence-based Decisions to Survive Cancer

Week 8
May 19, Lecture 15:           Molecular Mechanisms of Cancer 1
May 21, Lecture 16:           Molecular Mechanisms of Cancer 2

Week 9
May 26, Lecture 17:           Neurodegenerative Disease 1
May 28, Lecture 18:           Neurodegenerative Disease 2

Week 10
June 2,   Lecture 19:         Neurodegenerative Disease 3
June 4,   Lecture 20          Stem Cells


June 9,         8:00-10:59 am          Final exam

# Student Resources

*Academic Support*

**UC San Diego Library**
- Ask a Librarian: https://library.ucsd.edu/ask-us/
- Library Help: https://library.ucsd.edu/ask-us/triton-ed.html

**Teaching + Learning Commons**
- Writing Hub: https://writinghub.ucsd.edu/
  *Improve writing skills and connect with a peer writing mentor*
- Academic Achievement Hub: https://aah.ucsd.edu/
  *Supplemental instruction, content tutoring and learning strategy tutoring*

**Office of Academic Support & Instructional Services (OASIS): https://oasis.ucsd.edu/**
*Intellectual and personal development support*

**Student Success Coaching Program: https://successcoaching.ucsd.edu/**
*Peer mentor program that includes information, resources, and support in meeting your goals*

## *Additional Student Resources for Your Personal Well-Being*

**The Hub Basic Needs**
*The Hub addresses basic needs insecurities you might face. They provide necessary resources, break stigma surrounding basic needs, and foster a sense of belonging for every student. The Hub builds community to help one another.*
https://basicneeds.ucsd.edu/ | basicneeds@ucsd.edu | (858) 246-2632

**Counseling and Psychological Services (CAPS)**
*Services and programs that enhance the college experience, promote academic success, and help you develop effective coping skills.*
https://wellness.ucsd.edu/caps/ | (858) 534-3755

**CARE at the Sexual Assault Resource Center**
https://care.ucsd.edu | sarc@ucsd.edu | (858) 534-5793

**Office for the Prevention of Harassment & Discrimination (for Students)**
https://ophd.ucsd.edu/policies-procedures/polpro_student.html

**Undocumented Student Services**: https://uss.ucsd.edu/

**Triton Concern Line: (858) 246-1111**
http://blink.ucsd.edu/go/students-of-concern
*Report students of concern*

## Student Accommodations

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 (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

**Office for Students with Disabilities (OSD)**
https://disabilities.ucsd.edu/ | osd@ucsd.edu | (858)534-4382

## UC San Diego Principles of Community

The University of California, San Diego is dedicated to learning, teaching, and serving society through education, research, and public service. Our international reputation for excellence is due in large part to the cooperative and entrepreneurial nature of the UC San Diego community. UC San Diego faculty, staff, and students are encouraged to be creative and are rewarded for individual as well as collaborative achievements.

To foster the best possible working and learning environment, UC San Diego strives to maintain a climate of fairness, cooperation, and professionalism. These principles of community are vital to the success of the University and the well being of its constituents. UC San Diego faculty, staff, and students are expected to practice these basic principles as individuals and in groups.
https://ucsd.edu/about/principles.html

## Equity, Diversity and Inclusion

UC San Diego (as an institution) and I (as a human being and instructor of this course) are committed to full inclusion in education for all persons. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students with health or other personal concerns, and to students with other kinds of support needs. Please feel free to let me know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

**Office of Equity, Diversity, and Inclusion**
https://diversity.ucsd.edu/ | diversity@ucsd.edu | (858) 822-3542

*Equity and Inclusion During COVID-19:*
https://diversity.ucsd.edu/centers-resources/equity-and-inclusion-during-covid-19.html

**Student Life: Diversity**
https://students.ucsd.edu/student-life/diversity/

# UC San Diego Policies

## *Academic Integrity*

Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result sanctions. Sanctions can include an F in this class and suspension or dismissal from the University. So, think carefully before you act by asking yourself:

a) is what I'm about to do or submit for credit an honest, fair, respectful, responsible & trustworthy representation of my knowledge and abilities at this time and,

b) would my instructor approve of my action?

You are ultimately the only person responsible for your behavior. So, if you are unsure, don't ask a friend—ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at http://academicintegrity.ucsd.edu

(Source: Academic Integrity Office, 2018)

## *UCSD Student Conduct Code*
https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf

## *University of California Diversity Statement*
https://regents.universityofcalifornia.edu/governance/policies/4400.html

## *Religious Accommodation*
EPC Policies on Religious Accommodation, Final Exams, Midterm Exams