Syllabus, Molecular Basis of Human Disease, BIMM 110, winter 2018

Location: Sequoyah Hall 148

Time: 5:00 PM to 6:20 PM, Monday and Wednesday

Instructor: Professor Dong-Er Zhang, email: dez@ucsd.edu

Website for the course: TED with your own username and password

Course Description:
This course presents 1) genetic, biochemical, and molecular biological approaches used to identify the molecular basis of human diseases; 2) the current understanding of selected major human diseases at molecular and cellular levels with resulted physiological consequences; 3) successful and possible therapeutic treatment of these human diseases. This is an upper level undergraduate class. It is expected that students who take BIMM 110 already have a good background in molecular biology, metabolic biochemistry, and genetics.

There is no required course textbook. Lecture slides will be posted on the website and are available for download.

Week 1:
January 8, Lecture 1: Diseases, genes, cell cycles, and chromosomes
January 10, Lecture 2: Human disease pedigree and hemophilia

Week 2:
January 15, Martin Luther King Jr. Day
January 17, Lecture 3: Gene expression, mutation, and diseases of red blood cells

Week 3:
January 22, Lecture 4: Identification of disease genes by analyzing human genome
January 24, Lecture 5: Genetic Characteristics of Ophthalmologic Diseases and Treatment (Guest Lecture, Kang Zhang, MD-PhD)

Week 4:
January 29, Lecture 6: Epigenetics in gene expression, human diseases, and X-inactivation
January 31, Lecture 7: Cell lines and animal models to study human diseases

Week 5:
February 5, Lecture 8: Meiotic disjunction and chromosomal numerical abnormalities
February 7, Lecture 9: Muscle disorders

Week 6:
February 12, Midterm exam
February 14, Lecture 10: Human Mitochondrial Diseases

Week 7:
February 19, Presidents' Day
February 21, Lecture 11: Stem cells and related therapies

Week 8:
February 26, Lecture 12: Cancer, oncogenes, and tumor suppressors
February 28, Lecture 13: Plasticity of Cancer Cells (Guest Lecture by Prof. Inder Verma)

Week 9:
March 5, Lecture 14: Gametogenesis, embryo development, and infertility
March 7, Lecture 15: Neurodegenerative diseases

Week 10:
March 12, Lecture 16: Alzheimer's disease (guest lecture, Gwen Kaeser, PhD)
March 14, Lecture 17: Cystic fibrosis

Class attendance: Students are expected to attend all lectures. Keep cell phone off or on vibrate mode.

Professor Office Hours: Professor Zhang will hold her office hours on Thursdays from 3:30 PM to 4:30 PM, in Leichtag 205. Professor Zhang will have a midterm review session at 3pm on February 10 (Saturday, location: TBD) and a final review session at 3pm on March 17 (Saturday, location: TBD)

Teaching Assistant Daniel Johnson
Discussion sections are in Center Hall 207 on Fridays at 1:00-1:50pm and 2:00-2:50pm
Office hours: Starbucks patio in the Price Center on Tuesdays at 3:00-3:50pm

Attendance of office hours and discussion sections are not required. However, you will learn more **(get a better grade)** if you regularly attend sections and office hours.

Course grading

MIDTERM EXAM: February 12, 5:00 - 6:20 PM. The midterm exam will account for 35% of the final grade. No make-up exams.

FINAL EXAM: March 19, 7:00 - 9:59 PM, location will be announced later. The final **comprehensive** exam (all lectures) will account for 65% of the final grade. No Make-up exams.

Both exams will be closed book/closed computer/no any electronics. There will be zero tolerance to any cheating behavior. The format of midterm and final exams will be similar, i.e. short answers to short questions. All questions on both exams will be derived from lecture materials.

The midterm and final exam questions with answers from last year are at the TED website to assist you to prepare for the exams.

Overall course letter grades will be calculated: midterm x 35% + final x 65% = score
90-100 – A; 78-89 – B; 65-77 – C; 53-64 – D; 0-52 - F

Regrades: We will randomly copy students' exams. Only exams written in ink can be submitted for regrade. Any requests for regrades must be submitted in writing (clearly state the reason for regrade request and attach the statement to the complete exam) within 7 days after the exams have been returned for the midterm (the deadline of final exam regrade will be announced later). Professor Zhang reserves the right to regrade the entire exam when a request is submitted, which may change the score in either directions.