

CLASS#, WEEK #	DATE	TOPIC	REQUIRED READING, HOMEWORK, AND SUPPLEMENTARY READING	IN SECTIONS
1 Wk 0	Thu. 9/26	Overview of course procedures and the syllabus. Recent evolutionary and ecological history of humans and its dramatic influence on the types of disease that afflict humankind.	<p>Recommendation: start working on Homework #1 (Ted): Write about your favorite disease, due on Thu, Oct. 3 on Turnitin/Ted</p> <p>Supplementary reading on Human evolution:  <a href="http://tolweb.org/tree/">http://tolweb.org/tree/</a>  <a href="http://anthropology.si.edu/humanorigins/faq/Encarta/encarta.htm">http://anthropology.si.edu/humanorigins/faq/Encarta/encarta.htm</a>  <a href="http://www.bradshawfoundation.com/journey/">http://www.bradshawfoundation.com/journey/</a> <a href="http://en.wikipedia.org/wiki/Domestication">http://en.wikipedia.org/wiki/Domestication</a></p>	No sections
2 Wk 1	Tue. 10/1	Human Karyotype. Meiotic non-disjunction. Chromosomal numerical abnormalities. Introduction to Down Syndrome	<p><b>Required reading:</b>  Human chromosomes, Parts 2.3 – 2.6 in  <a href="http://www.ncbi.nlm.nih.gov/books/bv.fcgi?highlight=xxy&amp;rid=hmg.section.196#207">http://www.ncbi.nlm.nih.gov/books/bv.fcgi?highlight=xxy&amp;rid=hmg.section.196#207</a>  Complete <b>reading quiz #1</b> on Ted before class</p>	In sections: discussion of course materials, get to know your TA's
3 Wk 1	Thu. 10/3	Mouse models of Down syndrome and study of patients with DS caused by translocations	<p><b>Homework #1</b>, posted on Ted:  Research your favorite disease, submit on Turnitin through Ted before class</p>	In sections: discussion of course materials, get to know your TA's
4 Wk 2	Tue. 10/8	Sex chromosomal abnormalities. X inactivation. X inactivation and epigenetic regulation of genes expression.	<p><b>Required reading:</b>  Strachan, Tom. Human Molecular Genetics, 4th Edition. Garland Science, online subchapters: X inactivation, Part 2.2.3 and 2.4.3 X-Y pairing and the pseudoautosomal regions  <a href="http://www.ncbi.nlm.nih.gov/books/bv.fcgi?highlight=xxy&amp;rid=hmg.section.144#152">http://www.ncbi.nlm.nih.gov/books/bv.fcgi?highlight=xxy&amp;rid=hmg.section.144#152</a>  and Molecular Biology of the Cell. 4th edition.  Alberts B, Johnson A, Lewis J, et al. New York: Garland Science; 2002.  Subchapter: Chromosome Wide Alterations in Chromatin Structure Can Be Inherited:  <a href="http://www.ncbi.nlm.nih.gov/books/NBK26854/">http://www.ncbi.nlm.nih.gov/books/NBK26854/</a>  <b>Reading quiz #2</b> is due on Ted before class</p>	In sections: problem set questions and preparation for paper discussion next week

5 Wk 2	Thu. 10/10	Sex chromosomal abnormalities, contd. <b>Single gene diseases:</b> Human pedigree analysis.	<b>Watch:</b> Online lecture 1 (mandatory) Homework #2 is due on Ted/Turnitin is due on Oct. 17, based on reading of resources from online lecture #1	In sections: problem set questions and preparation for paper discussion next week
6 Wk 3	Tue. 10/15	Examples of single gene diseases	Continue working on Homework #2, due on Thursday  <u>Mandatory reading:</u> <a href="http://depts.washington.edu/bonebio/ASBMRed/growth.html">http://depts.washington.edu/bonebio/ASBMRed/growth.html</a> Reading quiz #3 is due before class	<b>Mandatory discussion section: Paper #1</b>
7 Wk 3	Thu. 10/17	Molecular pathways that control bone elongation: RTK signaling, role of FGFR3 Mouse model of Achondroplasia	Homework #2 is due on Turnitin/Ted, before class	<b>Mandatory discussion section: Paper #1</b>
8 Wk 4	Tue. 10/22	The underlying mechanisms of RTK hyper-activation in Achondroplasia	Online lecture 2. "Reading" quiz #4, based on the online lecture, due before class	In sections: problem solving, prep for the Midterm
9 Wk 4	Thu. 10/24	<b>Multifactorial diseases – interactions of genes and environment</b>  Cardiovascular disease. Guest speaker: Prof. Bill McGinnis		In sections: problem solving, prep for the Midterm
Wk 5	<b>Tue. 10/29</b>		<b>Midterm</b>	
10 Wk 5	Thu. 10/31	Diabetes	Watch animation on Type I Diabetes: <a href="http://www.wehi.edu.au/education/wehitv/insulin_production_and_type_1_diabetes/">http://www.wehi.edu.au/education/wehitv/insulin_production_and_type_1_diabetes/</a> Mandatory reading: TBA Reading quiz #4 due before class	In sections: problem solving, prep for next week's Paper 2

				discussion
11 Wk 6	Tue. 11/5	Diabetes and Obesity	Watch online lecture 3 (The mechanism of insulin secretion) and complete quiz #5	Mandatory sections: Paper 2
12 Wk 6	Thu. 11/7	History of cancer research Guest speaker: Prof. Reuben Shaw, Salk		Mandatory sections: Paper 2
13 Wk 7	Tue. 11/12	Cancer, contd.		In sections: problem solving, prep for next week's Paper 3
14 Wk 7	Thu. 11/14	Development of a cancer drug	Guest speaker: Dr. James Christensen, Vice president, research, Mirati Therapeutics	In sections: problem solving, prep for next week's Paper 3
15 Wk 8	Tue. 11/19	Cholera Guest speaker: Dr. Annabel Guichard	<b>Part 3: Infectious Diseases</b>	Mandatory sections, starting on Wed: Paper 3, <b>Guichard et al., 2013</b>
16 Wk 8	Thu. 11/21	Bacterial diseases		Mandatory sections: Paper 3, <b>Guichard et al., 2013</b>
17 Wk 9	Tue 11/26	Viral diseases		Monday sections mandatory sections, starting on Wed: Paper 3, <b>Guichard et al., 2013</b>
Wk 9	Thu 11/28		<b>No Class, Happy Thanksgiving!</b>	
18 Wk 10	Tue. 12/3	Malaria		In sections: review of course material

19 Wk 10	Thu. 12/5	Overview		In sections: review of course material
			TA led review session TBA	
	<b>Mon. 12/9</b>		<b>FINAL EXAM, 3-6PM, location TBA</b>	

## WELCOME TO BIMM 110: MOLECULAR BASIS OF HUMAN DISEASE!

### DESCRIPTION

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 WEBSITE: [Ted](#)

### REQUIRED MATERIALS:

iClicker - a small handheld radio frequency device that you will use to answer questions posed in class each day. Only the iClicker brand will work. New or used iClickers can be purchased at the bookstore. If purchasing iClicker imposes significant financial burden, another option is to sit close to one of the TA's and submit your answers to him or her on a piece of paper with your name on it, at the same time as the class is voting via clickers. Clicker participation will contribute to 2% of your final grade. You will need You will be graded based on your participation, regardless whether your answer was right or wrong. To get full credit, you will need to answer (=click) to at least half of the questions in 75% of the lectures, starting in week 3, Oct. 15 (you can start earning clicker credits earlier, starting in the first class). There is no need to notify the instructor or the TA's if you forgot your clicker or ran out of battery - as long as you've participated in 75% of the lectures, you are fine.

**TEXTBOOK** There is no required course textbook. All lecture slides will be posted on the website and are available for download. The lectures will be videocasted.

### OFFICE HOURS

Ella Tour: Monday, 1:30-2:30PM in York 2300, Fri -TBA  
TA's office hours will be posted on Ted

### GRADING:

1 Midterm	25% of the final grade
Final exam	55%
Homework assignments on Ted	7%
Reading quizzes	8%
Group work in class	3%
Clicker participation	2%

All exams will be closed book/closed computer. Questions will be derived from the lectures, problem sets, homeworks, reading quizzes, and questions discussed in class.

Overall course letter grades will be assigned using the following scheme:

88-100%	A (A-, A, A+)
78-87%	B (B-, B, B+)
60-77%	C (C-, C, C+)
45-59%	D
0-44%	F

**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**

Absolutely no cheating will be tolerated. UCSD Policies on Academic integrity will be enforced

**For further information:**

<http://blink.ucsd.edu/Blink/External/Topics/Policy/0,1162,19400,00.html>

All work must be done by the student to whom it is assigned, without any unauthorized aid of any kind.