GENOME 371 – INTRODUCTORY GENETICS

COURSE WEBSITE: http://courses.washington.edu/gensci371/

COURSE DESCRIPTION: This course will focus on fundamental concepts of genetics (how traits are inherited, how traits change), genetic analysis (the use of mutations in model organisms to explore fundamental biological processes) genomics (the application of genome-wide approaches to analyze gene structure and function) and bioinformatics (the use of computing to derive knowledge from biological data). **Prerequisites: minimum grade of 1.5 in BIOL 180 and BIOL 200.**

COURSE INSTRUCTORS:
-Dr. Evan Eichler, Foege S-413C; Tel: 543-1677; email: eee@u.washington.edu
-Dr. Leo Pallanck, Foege S-443E; Tel: 616-5997; email: pallanck@u.washington.edu
-Anne Paul, Foege S-430; Tel: 221-6176; email: annep@u.washington.edu

All of the faculty offices in the Foege building require a security pass to access directly. Therefore, you must use telephones located near the elevators on the first floor of the Foege building to call the faculty member so that they can let you into the secure areas of the building.

TEACHING ASSISTANTS:
Diane Dickel: dedickel@u.washington.edu
Sunhee Jung: sunhee@u.washington.edu
Jeffrey Kidd: kiddj@u.washington.edu
Craig Bierle: cjb57@u.washington.edu
Kristen Lewis: kelewis@u.washington.edu
Tom Nicholas: tjn3@u.washington.edu

LECTURES: Monday and Friday, 10:30-12:20 PM in the Foege Auditorium S-060. Outlines of the lecture material will be handed out in advance to assist you in taking notes. Extra copies of lecture material will be available on the table outside Hitchcock 443. Lectures will be videotaped and available for online viewing through the course website typically within 24 hours. ***The videos are meant to assist you only if you MUST miss a class. They are NOT an acceptable substitute for attending and participating in class discussion***.

QUIZ SECTIONS (LABS): Quiz sections will be held on Wednesdays and Thursdays in Hitchcock 443.

Section AA: 9:30-10:50
(Anne Paul)
Section AB: 11:00-12:20
(Diane & Craig)
Section AC: 12:30-1:50
(Diane & Craig)
Section AD: 2:00-3:20
(Kristin & Jeff)
Section AE: 3:30-4:50
(Kristin & Jeff)
Section AF: 9:30-10:50
(Anne Paul)
Section AG: 11:00-12:20
(Sunhee & Tom)
Section AH: 12:30-1:50
(Sunhee & Tom)

As quiz section time is tight, ***it is imperative that you be punctual.***

OFFICE HOURS: Office hours will be arranged according to best fit the needs of students.

Genome 371 course schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM					
10:00 AM			QS AA: Anne Paul	QS AF: Anne Paul	
11:00 AM	Lecture		QS AB: Diane & Craig	QS AG: Sunhee & Tom	Lecture
12:00 PM					
1:00 PM			QS AB: Diane & Craig	QS AH: Sunhee & Tom	
2:00 PM			QS AE: Kristen & Jeff		
3:00 PM					
4:00 PM			QS AE: Kristen & Jeff		
5:00 PM					
6:00 PM					

TEXTBOOK: No textbook is required for this course. If you wish to pursue supplementary reading, however, any of the following textbooks will do. All three of these texts will be placed on reserve in the Odegaard Undergraduate library under this course listing:

-Griffiths, A. J. F., Wessler, S. R., Lewontin, R. C., and Carroll, S. B. 2008. *Introduction to genetic analysis*. 9th ed. W. H. Freeman and Company, New York, NY. ISBN: 139780716768876.

-Hartwell, L. H., Hood, L., Goldberg, M. L., Reynolds, A. E., Silver, L. M., and Veres, R. C. 2006. *Genetics from genes to genomes*. 3rd ed. McGraw-Hill, Boston, MA. ISBN-10: 0073227382.

-Klug, W. S., Cummings, M. R., and Spencer, C. A. 2006. *Concepts of genetics*. 8th ed. Pearson Prentice Hall, Upper Saddle River, NJ. ISBN: 0131918338.

EXAMINATIONS: There will also be two midterm exams worth 100 points each and a cumulative final exam worth 200 points. The exams will potentially cover material presented in lecture, quiz sections, and from any assigned reading. The final exam will focus primarily on material covered in the last half of class but will also require knowledge acquired earlier in the course. If you must miss an exam for a (non-emergency) reason that you feel meets the university handbook guidelines (e.g., University-sponsored event), ***you must fill out a permission form (available from Anne Paul) and return it to Dr. Eichler or Dr. Pallanck by April 7th, 2008***. Makeup exams will be given before the scheduled exam date. An oral or written makeup exam will be given to students that miss a midterm exam because of an emergency that can be documented, at the discretion of the course instructors. Students that miss the final exam because of an emergency that can be documented will be given an incomplete (I) grade for the course, assuming that they meet the requirements for this grade. Students receiving an incomplete grade will need to take the final exam in the Genome 371 course offered the following quarter.

First midterm exam:	Friday, April 25th, **Location to be determined**
Second midterm exam:	Friday, May 16th, **Location to be determined**
Final exam:	Monday, June 9th, 8:30-10:20, **Location to be determined**

PROBLEM SETS: We will handout problem sets for practice and partially solve course-topic-related problems in class, although these will not be graded. In addition, explanations and discussions are often presented in lecture in response to questions from students.

GRADING: This course will be graded on the curve. Specifically, individuals earning the median number of course points will receive a 2.8 grade in the class. Individuals earning greater or fewer than the median number of points will receive grades adjusted accordingly. **TO PASS THIS CLASS YOU MUST EARN AT LEAST HALF THE MEDIAN NUMBER OF COURSE POINTS - NO EXCEPTIONS.** If you feel that an error was made in the grading of any of your exams or quizzes, please send an email message to Anne Paul summarizing the error WITHIN A WEEK from the date that the graded exams are made available to you. We will consider your regrade request using our photocopied version of the exam in question.

HONESTY: Honesty is a highly valued principle in science. In Genome 371 we strive to create an environment where individual achievement and honesty are rewarded. In this spirit, we expect that each student will do his or her own work on minitests and exams. During tests and exams we will circulate to answer your questions. If we observe behavior that does not meet our standards of honesty, we will take actions to remedy the situation during the exam. For these reasons, please keep your eyes on your own paper. We reserve the right to report any breach of conduct to the University Disciplinary Board. If they find that an infraction has been committed, the minitest or exam in question will be given a zero and in the case of a minitest, that zero may not be the dropped score. As a further deterrent to alter exams after they are graded, and as an aid for grading them rapidly, we keep Xeroxed copies of student papers.

GENOME 371 COURSE SCHEDULE: Exam dates are firm but lecture topics may change.

WEEK	MONDAY	QUIZ SECTION (LAB)	FRIDAY
01 March 31-April 4	Lecture#1 **Evan Eichler** What you will learn Central Dogma Mutants	**Central Dogma**	Lecture #2 **Evan Eichler** Chromosomes Cell Cycle Regulation
02 April 07-11	Lecture #3 **Evan Eichler** Meiosis Segregation Independent Assortment	**Mitosis & Meiosis**	Lecture #4 **Evan Eichler** Genotype -> Phenotype Cat Coat Color Mutants
03 April 14-18	Lecture #5 **Evan Eichler** Sex Linkage Pedigrees	**Cat Coat Color**	Lecture #6 **Evan Eichler** Analyzing Mutants Complementation Tests
04 April 21-25	Lecture #7 **Leo Pallanck** Genetic analysis (yeast Ade pathway): epistasis, complementation	**Yeast Complementation**	Midterm Exam #1 Hogness Auditorium
05 April 28-May 2	Lecture #8 **Leo Pallanck** Meiotic Mapping; tetrad Analysis	**Yeast Tetrad Analysis**	Lecture #9 **Leo Pallanck** Meiotic mapping; physical maps
06 May 05-09	Lecture #10 **Leo Pallanck** Reversion; suppression, mutagenesis; mutational repair	**C. elegans mutagenesis**	Lecture #11 **Leo Pallanck** Cloning; molecular biology techniques
07 May 12-16	Lecture #12 **Evan Eichler** Human gene mapping: molecular markers	**C. elegans mutagenesis**	Midterm Exam #2 Hogness Auditorium
08 May 19-23	Lecture #13 **Evan Eichler** Human gene mapping: LOD scores	**Pedigree Analysis**	Lecture #14 **Evan Eichler** Human genomics: genome sequencing methods; genome organization
09 May 26-30	Holiday	**Bioinformatics I: OMIM; UCSC browser; Blast**	Lecture #15 **Leo Pallanck** Mapping and cloning the Huntingtin gene
10 June 02-06	Lecture #18 **Leo Pallanck** Mapping and cloning the Huntingin gene: BLAST; mouse models of disease	**Putting it all together**	Lecture #19 **Leo Pallanck** Population genetics: neutrality and drift, negative and positive selection. Review
11 **Monday** June 09	Final Exam 8:30am-10:20pm To Be Determined		