General Genetics II: Genetics 468 Syllabus Spring 2017

COURSE DESCRIPTION:
The course will cover experimental approaches for genetics analysis, as well as methods to study population and quantitative genetics. The scope of the topics and level will be equivalent to the current Genetics 466, however, we are allotting twice the amount of time to cover these topics as compared to the current Genetics 466. The extra time will allow instructors to provide more examples for concepts, review more problems in class, and expand the use of active learning exercises in class.

INSTRUCTORS:
Alternating years.
(Patrick Masson and Bill Engles) (Al Laughon and John Pool)

TEACHING ASSISTANT:
(One TA, TBA) Office hours: by appointment

CLASS:
MWF 11AM-11:50AM in TBA

OFFICE HOURS:
TBA or by appointment with both instructors.

COURSE WEB SITE: Login at learnUW.wisc.edu and navigate to the Genetics 468 course site. Course content, discussion boards, quizzes and the gradebook will be found at this site.

RECOMMENDED TEXTS:

Introduction to Genetic Analysis, 10th Edition by Griffiths, Wessler, Carroll and Doebley (2012), W. H Freeman and Company. ISBN 1-4292-2943-8

Solutions Manual for Introduction to Genetic Analysis, 10th Edition by Scott, Sia, Brockett, Fixsen and Lavett (2012) W.H. Freeman and Company. ISBN 1429201770

ASSESSMENT:

There will be six quizzes throughout the semester that will be conducted during the normal lecture hour.

There will be a final cumulative exam.

You are allowed notes that will fit on a 3x5 inch notecard (both sides can be used), but you must turn the card in with your exam (you can get it back after the exam is graded). You are allowed a calculator (nonprogrammable) but no cell phones or ipods.

GRADING: The four exams will be weighted equally (100 points each).

Grading Scale:
A 90%

AB	86-89%
B	80%
BC	76-79%
C	70%
D	60%
F	**<60%**

ASSIGNED PROBLEMS: Homework problems are assigned to help you understand the material and prepare for the exams. Homework will not be collected or graded but IT IS HIGHLY ADVISABLE TO DO THE PROBLEMS at the end of each chapter. Many exam questions will be problem-oriented.

SUGGESTED READINGS: It is highly advisable to read the suggested sections of the textbook before every lecture. This will help in understanding the material presented during the lectures. Exams will be on the material discussed during the lectures, and in the related problems. Hence, it is also highly recommended to attend all lectures and assigned discussion sections.

Genetics 468 Syllabus Spring 2017

Lecture		Date	Topics
1	M	Jan 23	Mutant screens I
2	W	Jan 25	Mutant screens II
3	F	Jan 27	Pathway analysis
4	M	Jan 30	Mosaic analysis I
5	W	Feb 1	Mosaic analysis II
6	F	Feb 3	Reverse genetics
7	M	Feb 6	**Problem Session and review**
8	W	Feb 8	**Quiz 1**
9	F	Feb 10	Genomic methodology
10	M	Feb 13	Informatics/Genome Annotation
11	W	Feb 15	Functional Genomics
12	F	Feb 17	Genomic variation
13	M	Feb 20	De novo and somatic mutation
14	W	Feb 22	**Problem Session and review**
15	F	Feb 24	**Quiz 2**
16	M	Feb 27	Epigenetics
17	W	Mar 1	Noncoding RNAs
18	F	Mar 3	RNA-Directed Gene Silencing
19	M	Mar 6	Genetic basis of Immunity
20	W	Mar 8	Genetic basis of Cancer
21	F	Mar 10	**Problem Session and review**
22	M	Mar 13	**Quiz 3**
23	W	Mar 15	Hardy-Weinberg & the Gene Pool Concept
24	F	Mar 17	Linkage Equilibrium
Spring Break			
25	M	Mar 27	Mutation and Migration
26	W	Mar 29	Inbreeding
27	F	Mar 31	Genetic Drift
28	M	Apr 3	**Problem Session and review**
29	W	Apr 5	**Quiz 4**
30	F	Apr 7	Darwin and Natural Selection

31	M	Apr 10	Detecting Natural Selection at the DNA level
32	W	Apr 12	Population Structure
33	F	Apr 14	The Inheritance of Complex Traits
34	M	Apr 17	Nature versus Nurture
35	W	Apr 19	Genetics of Plant and Animal Breeding
36	F	Apr 21	**Problem Session and review**
37	M	Apr 24	**Quiz 5**
38	W	Apr 26	Evolution under domestication
39	F	Apr 28	Comparative Genomics
40	M	May 1	Evolutionary Genomics
41	W	May 3	Ancient DNA
42	F	May 5	Human Genome Variation
43	M	May 8	**Problem Session and review**
44	W	May 10	**Quiz 6**