

BIO 325ext – GENETICS
Summer 2011
Prof: Janice Fischer

MW
6:00–8:30pm
BIO 301

COURSE INFORMATION AND POLICIES

REQUIRED BOOKS

1. *Genetics: From Genes to Genomes* – 4rd edition by Hartwell et al. (McGraw-Hill publishers) **There is also an ebook available for purchase at a lower cost if you prefer.**
2. *Solutions Manual* for problems in Hartwell textbook (authored by Nero).

When you buy this book, you will have on-line access to the web supplement: “*Genetic Portrait Chapters*”. There will reading assigned from this supplement as well. You will also have access to a variety of animations and study aids on the website associated with the book. You might find these useful.

CLASS MEETINGS

- There is a detailed Course Schedule on the last page of this syllabus.
- There will be 2 one-hour lectures every class meeting, broken in the middle by one of the following activities:
 - Every Monday – there will be a 30-minute quiz on the material from the previous week.
 - Every Wednesday – there will be a 30-minute Q and A session. (except for Wed July 6 – there will be a quiz that day instead)
- The purpose of the lectures is to let you know what material you are responsible for mastering, and of course to explain the material in a useful way to make it easier for you to understand than if you simply read the book on your own, and to respond to your immediate questions. We cannot possibly cover the entire book, and sometimes we will discuss information that is not in the book. (I will post supplementary reading for this.)
- You must show up in class every Monday and Wednesday. There are only 15 class meetings, so we are going to cover A LOT of material at each class meeting. If you miss more than one class, your grade will suffer automatically. (see GRADES below)
- You should read the chapter in the book and posted supplementary information before you come to class so that you can follow lecture better and ask questions.
- Come prepared on Wednesdays with questions about the lecture material, reading, or problems at the end of the book chapters. Solving these problems are a good way to test your knowledge, and is good practice for quizzes and the final. I will suggest some problems, but you should do as many relevant to lecture material as you can.

BLACKBOARD

I will use the Blackboard website for this course to post the following:

- (1) Powerpoints of my lectures. These will be posted before the lecture.
- (2) Supplementary reading or other material
- (3) Detailed answers to the quizzes and quiz grade statistics.
- (4) Important Announcements

Make sure that your email address on Blackboard is accurate as I may email the class with important announcements

HOMEWORK AND STUDYING

Learning GENETICS is like learning to play a musical instrument or learning to excel in a sport that requires eye-hand coordination. You need to practice a lot in order to synthesize and solidify new neural circuits in your brain. Your brain needs to rewire itself physically in order for you to think abstractly like a geneticist. Yes, really. Think of me the way you think about your music teacher or your athletic coach. In lecture, I can explain to you what it is you need to practice thinking and why, but I cannot do the thinking practice for you. You must do it yourself, and as much as possible. MEMORIZING, OR TRYING TO STUDY SPECIFICALLY TO PASS AN EXAM, WILL GET YOU NOWHERE IN THIS COURSE. So please, for your own sake, stop thinking about school that way.

You have to keep up with the class because the summer course goes by quickly! Summer session is "total immersion" Genetics. The weekly quizzes and Q&A sessions will force you to keep up.

Do not feel constrained in your learning by your textbook or the supplementary reading that I post. That would be crazy! I think that the textbook is very good, but you have the whole world in your hands at the keyboard of a computer. Don't hesitate to use the internet to find additional helpful reading material. However, as always, DO NOT TRUST THE ACCURACY OF EVERYTHING you read on the internet. If anything you read seems at odds with the way we discussed something in class, please tell me about it in discussion section. This could spark interesting discussion. Also, when we talk about molecular biology techniques and experiments, you might want to look for demonstrations of these techniques on YouTube. Yes - YouTube!!! There are videos of people performing various laboratory techniques, and seeing this can sometimes help you understand the laboratory procedures that you have not yourself done or witnessed.

The University Course Guidelines suggest that for each hour a course meets, an average of 2 additional hours of studying is expected of the student. Therefore, taking this course over the summer is obviously a 20-hour per week job. The course material is highly analytical and draws from a broad knowledge base. Thus, it will require a lot of time.

QUIZZES AND FINAL EXAM

There will be 7 30-minute Quizzes during class (see schedule below) and a 3-hour comprehensive final exam. The quizzes will consist of short-answer questions and problems. The final exam will be a multiple choice test.

There will be no make-up quizzes. If you are absent and miss a quiz, that will be your dropped Quiz grade, as only your 6 highest quiz grades count towards your grade.

Look at the dates and times of all eight exams in order to be certain that you are able to attend. The University allows me to give make-up exams only for officially sanctioned reasons such as documented serious illness, etc. I am not allowed to give make-up exams for any planned absences, such as weddings, family vacations, or anything of that nature.

GRADES

Your final course grade will be computed as follows:

60% average of your 6 highest quiz grades

40% final exam

ALSO - you may miss one class meeting without a grade penalty. After that, for each class you miss, your grade is automatically lowered by one interval. This means that if you miss 2 classes, and your final grade falls out as a B, you will get a B-, etc.

Your numerical average will be used as the basis of your letter grade. However, in a class as small as this one, it is impossible to use statistical analysis for assigning grades. After each quiz, I will post the grades of everyone in the class (anonymously) so you can see how you did relative to everyone else.

Scale for grading:

90 - 100	A
85 - 89	A-
80 - 84	B+
75 - 79	B
70 - 74	B-
65 - 69	C+
60 - 64	C
55 - 59	C-
50 - 54	D
<50	F

If you ever think that a mistake has been made in grading your Exam, you must submit your entire exam for regrading on the next day that the class meets. Please attach to your exam a succinct note explaining precisely what mistake you think that I made. Exams submitted after the one class meeting deadline will not be regraded.

THERE IS NO WAY TO EARN EXTRA CREDIT IN THIS CLASS. YOUR GRADE WILL BE DETERMINED SOLELY BY YOUR PERFORMANCE ON THE Quizzes and Final Exam.

GETTING HELP FROM ME

Every Wednesday, we will take a break from lectures for a Q&A session. At this time, you should be prepared to ask me questions about lecture material, reading, problems in the book – anything you like. If you want to meet with me outside of this time, please send me an email (jaf@mail.utexas.edu) and we can set up a mutually agreeable time to meet in my office on campus, MBB 1.312AA. I read my email several times a day and will respond promptly. I'm not assigning specific office hours for this class because many of you are working in addition to going to school, and my experience is that one office hour time will not work for everyone. However, I am more than happy to meet with you to help you – even it means that we need to do it on the weekend.

WHO AM I?

Who is Janice Fischer and why does she get to teach me Genetics? Good question! I am a tenured Full Professor here at UT. I earned my PhD in 1988 in Biochemistry and Molecular Biology at Harvard University. My research was about gene regulation using *Drosophila* (fruit flies) as a model system. Then I did postdoctoral research at UC Berkeley and MIT where I learned a lot more about *Drosophila* genetics and development. I started out as an Assistant Professor here at UT in 1993, and I have been teaching BIO 325 since 1996. For 10 years, I used to teach a graduate course about genetic model systems and I am thinking about morphing this class into an Advanced Genetics class that will be available in a year or so under the number BIO366R. My other job at UT is to run my research lab, which is in MBB. I have several PhD students and undergraduates doing research in my lab. We use *Drosophila* as a genetic model system to understand molecular aspects of development, such as how cells communicate with each other to form patterns and organs. I discovered during my junior year in college, when I learned about the genetic code, that I wanted to be a molecular geneticist – and here I am!! I love genetics – and my aim is to transfer that to you. As per University Guidelines, my resume is posted on Blackboard.

UNIVERSITY POLICIES

Information about University of Texas policies pertaining to each of these subjects is available on the UT website.

Administrative Deadlines: It is your responsibility to keep track of the deadlines for dropping the course, changing to Pass/Fail, etc., etc., etc.

Academic Dishonesty: There is a ZERO TOLERANCE policy for academic dishonesty of any kind in this class. Don't even think about cheating on an exam in any way whatsoever.

Special Needs: If you need special treatment for a disability or for religious reasons, it is your responsibility to inform me of these matters in a timely manner and strictly according to University guidelines.

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COURSE SCHEDULE

DAY/DATE	CLASS	CHAPTER	TOPIC	
Mon JUNE 6	1	1	Introduction: What is a gene?	
Wed JUNE 8	2	2	Mendel's Laws	
Mon JUNE 13	3	3	Genotype and Phenotype	Quiz#1
Wed JUNE 15	4	4, 12	Chromosomes, Sex Determination, Sex Linkage	
Mon JUNE 20	5	5,6	Linkage and Gene Mapping/Recombination	Quiz#2
Wed JUNE 22	6	7	Mechanisms of Mutation	
Mon JUNE 27	7	7	Using Mutants to Understand Genes	Quiz#3
Wed JUNE 29	8	7, 8	The Genetic Code	
Mon JULY 4			HOLIDAY	
Wed JULY 6	9	9	Recombinant DNA Technology	Quiz#4
Mon JULY 11	10	11	Distinguishing Individuals by their DNA/ Cloning Human Disease Genes	Quiz#5
Wed JULY 13	11	*A, *E, supp	Transgenic Animals and Human Gene Therapy	
Mon JULY 18	12	13	Chromosome Rearrangements and Transposons/ Ploidy	Quiz#6
Wed JULY 20	13	14, 18, supp	Bacterial Genetics/ Extranuclear Inheritance	
Mon JULY 25	14	15, 16, supp, 12	Gene Regulation/ Epigenetics	Quiz#7
Wed JULY 27	15	17	Genetics of Cancer	
Wed AUG 3			COMPREHENSIVE FINAL EXAM (time TBD by UT Extension School)	

*Web Supplement: Genetic Portraits of Model Organisms – A, B, C, D, E
http://highered.mcgraw-hill.com/sites/007352526x/student_view0/genetic_portrait_chapters_a-e.html

supp = supplemental reading for this topic will be posted on Blackboard