

Molecular Genetics
BIOL 2540, section 2
2011 Syllabus
Brown-Pfizer Master of Arts Program in Biology

Class Time: Wednesday 3:30 pm – 6:30 pm
Class location: Pfizer campus

Instructor:
Mark Johnson, PhD
mark_johnson_1@brown.edu
401-863-3556

Satisfies Core Requirement for Master of Arts in Biology degree

Course Goals:

'Molecular Genetics' represents a set of techniques used by biologists to understand how cells and organisms work. Students will read and discuss examples of how this set of tools has been applied to make fundamental contributions to our understanding of biological function.

Students/Participants:

A background in genetics and coursework in one other area of biology or biochemistry is recommended. However, we will cover background material during each of our discussion sessions so that students are prepared to learn from the primary literature.

Assigned Papers and Reading:

Primary research papers will be discussed during each class. One - two papers will be chosen as the focus of each of our discussions. The goal is to use these papers to illustrate important concepts and techniques in molecular genetics. Students should be prepared to ask and answer questions about the papers during class – our goal is to have a lively and collegial discussion.

Links to each paper and background reading will be posted to myCourses at the beginning of the semester.

Textbook:

Introduction to Genetic Analysis 8th Edition ("Griffiths")
ISBN: 978-0716749394
Griffiths, Miller, Wessler, Lewontin, Gelbart, Suzuki, Miller.
Published by WH Freeman.

Discussion and Assignment Schedule:

Topics and dates for major assignments may change between now and the beginning of the semester. All primary articles and background reading from Griffiths will be assigned at the beginning of the semester.

Date	Discussion Topic	Pre-discussion assignment
1/26/11	Intro 1. Overview of Molecular Genetics - basic Genetics	none
2/2/11	Intro 2. Tools for genome analysis	Quiz
2/9/11	The yeast CDC screen	Questions
2/16/11	The C. elegans model system Mid-term I is assigned	Questions
2/23/11	Genetic analysis of floral development	Questions
3/2/11	Drosophila developmental genetics	Questions
3/9/11	Specialized enhancer/suppressor screens	Questions
3/16/11	Map-based cloning	Quiz
3/23/11	Epigenetics Mid-term II is assigned	Questions
3/30/11	no class - spring break	none
4/6/11	Human Genetics	Questions
4/13/11	RNAi I - the biology	Questions
4/20/11	RNAi III - the tool - full genome RNAi screens	Quiz
4/27/11	Chemical Genetics I	Questions
5/4/11	Chemical Genetics II Final Exam is Assigned	Questions

Office Hours:

I am always available by e-mail and will stay after each discussion session to answer questions. Meetings can also be arranged via internet conferencing (i.e. skype).

Assignments:

Exams (400 points total, all are cumulative, all are take-home)

Mid Term I	2/16 - 2/23/11	100 Points
Mid Term II	3/23 - 3/30/11	100 Points
Final	5/4 - 5/11/11	200 Points

Pre-Discussion Assignments (100 points total)

This course involves reading and discussing primary literature, therefore pre-class preparation and class participation are critical to the success of the course. You will be given one of the following pre-discussion assignments at the beginning of each class. The type of assignment for each meeting is indicated on the Reading List.

1. Quiz (5 minutes) on the primary paper to be discussed.
2. Pre-discussion questions. You will submit two questions about the paper to be discussed.

Pre-discussion quizzes and submission of questions will be administered using MyCourses. You will be required to upload questions/complete the quiz 15 minutes before class begins.

Each assignment will be graded out of 10 points; there will be 13 assignments; your grade will be calculated from your 10 highest (100 points total).

Grade determination:

Final Grades will be calculated out of a total of 500 points.

Mid Term I	100 Points
Mid Term II	100 Points
Take-home Final	200 Points
Pre-Discussion Assignments	100 points

Grades will be determined as follows:

85% (425 points)	A
75% (375 points)	B
60% (325 points)	C

Individual work policy:

You are required to write your own pre-discussion questions and work alone on the quizzes, exams, and written assignments. We do this so we can evaluate how well each student is learning the concepts and material. Cases of academic misconduct will be dealt with using Brown's academic Code: (http://www.brown.edu/Administration/Dean_of_the_College/academic_code/code.html).

Late work/absence policy:

Pre-discussion assignments will not be accepted late.

Assignments can be submitted electronically and ample time (one week) is given to complete all exams. If for some reason, it is impossible to complete an exam, please notify me at least two days before the exam is assigned.