

## Course Syllabus - Introductory Genetics 3200 A– Spring 2011

### BIOL 3200 Genetics - 3 Credit Hours

**Prerequisite:** MATH 1113, BIOL 1107, BIOL 1108 or permission of the instructor. A survey of modern genetics including: Mendelian and molecular genetics, as well as selected topics in population and quantitative genetics and genetic engineering. Note that this is a 3 hour lecture course without a lab component.

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**Lecture:** Section A: 2:00 - 3:15 pm Tu.& Th, . Room 1023 Bailey Science Center.

**Office Hours:** 1:00 - 2:00pm Tuesday and Thursday or appointment. I also have an open door policy, I encourage students to drop by whenever they may need help with the course. Please understand however, that under these circumstances, you may have to wait until I am free of other things.

**Text: 1)** Benjamin A. Pierce. *Genetics Essentials: Concepts & Connections*. 2010. 1<sup>st</sup> Ed. W.H. Freeman & Company. ISBN-13 # 978-1-4292-3040-7

2) Jung H. Choi & Mark E. McCallum. *Solutions & Problem-Solving Manual for Genetics Essentials: Concepts & Connections*. 2010. 1<sup>st</sup> Ed. W.H. Freeman & Company. ISBN-13 # 978-1-4292-4728-3

**Course Objectives:** Students are expected to demonstrate through their performance on tests and homework problems that they have learned a basic body of factual information and gained an understanding of the basic processes of genetics. Gaining an ability to logically understand and solve formal mathematical genetics problems is necessary and integral to this course. Students are responsible for the assigned reading material and all lecture materials on tests. A reasonable amount of study and problem practice time should be allocated to this course. A few hours study, the night before exams will not be sufficient to score well in this course. Achievement of the above objectives will be evaluated based upon the student's satisfactory completion of all class and homework exercises as well as performance on tests and examinations.

**Assessment/ Grading policy:** Letter grades will be based upon a 10 point scale. Homework assignments will constitute 10% of the overall final grade, and the lecture tests will compose the other 90 % of the overall grade. The number and due dates of graded homework assignments will be determined as need arises. There are 3 tests and a final exam falling on the date of the university scheduled exam. The final exam may be cumulative and may include new material. Overall the grading values will be: Tests and exam = 90%, homework = 10%. **Exams:** Don't miss exams. Absolutely no makeup tests or exams will be given. A grade of zero will be assigned for all missed assignments. No late tests or course assignments will be accepted for a grade.

### Some Basic Class Rules:

1. Students are responsible for all course materials covered in the text and in lecture.
2. Turn in assignments on time. No late assignments will be accepted for a grade.
3. Do assignments exactly as instructed. Show all work on assignments. Turning in answers alone will not be sufficient..
4. Do not try to negotiate homework, test or assignments. They are not optional, nor changeable. They must be complete.
5. Be on time for tests and lectures. Doors will be closed 10 minutes after the beginning of class on test days. Late arrivals will not be able to take the test and a grade of zero will be assigned. Be aware, one is enough to fail the course.
6. NO disruptive behavior will be tolerated (as defined in your student handbook, page 24). Anyone disrupting class will be asked to leave, perhaps permanently, may be dropped from the class or failed and this is solely at the instructors' discretion.

7. **Honor Policy:** Cheating nor plagiarism will not be tolerated in this class and will be prosecuted to the full extent allowed by university policy and the law. Cheating and plagiarism will be considered to be any act so defined in the university handbook

**Academic Honesty:** This course adheres to the university policy on academic integrity as set fourth in the undergraduate catalogue Student Code of Ethics (pages 93-94): Any student caught cheating will receive an F on the assignment, possibly for the course and be reported to the Dean of Students.

**Absentee policy:** I assume that students in this class are adults and are responsible for their own attendance and study habits. Students should also be aware of the following university policies that I have no choice in enforcing: **(1) Students who miss 20% of lecture time will receive an automatic failing grade for the course. (2) Students who do not regularly attend lecture, as determined by taking class role, by the proof role date will be automatically dropped from the class. (3) Students who neither drop nor attend class by the midterm date will receive an automatic F for the course. Also note: students are responsible for the text and lecture material on exams regardless of whether or not they come to class routinely. It is unlikely that students can perform well on exams in this class with poor attendance.**

**Dropping A Course Without Penalty:** In order to officially drop a course without penalty, a student must obtain and fill out a drop/add form from the Registrar's Office, acquire appropriate signatures, and return the completed form to the Registrar's Office before the designated date (published in the academic calendar). If you don't officially withdraw, and instead just stop coming to class, you will receive an F for the course. Please be aware of the university policy that limits the number of dropped courses to 5.

**Family Educational Rights and Privacy Act:** The Family Educational Rights and Privacy Act (FERPA) prohibit the public posting of grades by Social security number or in any manner personally identifiable to the individual student. No grades can be given by email or over the telephone, as positive identification can not be made by this manner.

**ADA Statement:** Students requesting classroom accommodations or modifications because of a documented disability must contact the Access Office for Students with Disabilities located in room 1115 Nevin's Hall. The phone numbers are 245-2498 (voice) and 219-1348 (tty).

### TENTATIVE SCHEDULE OF IMPORTANT DATES

**Please note that test dates are tentative and may change depending on the rate at which material is covered. Tests may be postponed but will never be moved ahead.**

January			
	Tuesday	10	- 1 <sup>st</sup> class
	Tuesday	17	- Martin Luther King Day – No class
February			
	Tuesday	8	- Test 1
March			
	Wednesday	3	- Midterm
	Tuesday	8	- Test 2
	Sat -Sun	12-20	- Spring Break – No classes
April			
	Tuesday	5	- Test 3
	Thursday	28	- Last class meeting
May			
	Monday	2	- Last class day for all courses
	Tuesday	3	- Exam Prep Day
	Wednesday	4	- Final Exam 2:45 pm – 4:45 pm

## Course outcomes:

### Departmental Outcomes as listed in the undergraduate catalogue (page 108):

The program of study in the Department of Biology has numerous desired outcomes. Examples of these outcomes include the following:

#### Educational Outcomes

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral formats used in peer-reviewed journals and at scientific meetings.
2. Describe the evolutionary processes responsible for biological diversity, explain the phylogenetic relationships among the major taxa of life, and provide illustrative examples.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and the function of DNA/RNA to the development of form and function of the organism and to heredity.
5. Interpret ecological data pertaining to the behavior of the individual organism in its natural environment; to the structure and function of populations, communities, and ecosystems; and to human impacts on these systems and the environment.

#### Specific course outcomes keyed to departmental and university expected educational outcomes:

By the end of this course, as demonstrated by performance on tests, homework problems and written laboratory reports, students will:

1. know and understand basic principles and relevant examples of Mendelian inheritance. **(departmental outcomes 1 through 5, university outcome 5).**
2. know and understand non-Mendelian principles and relevant examples of inheritance. **(departmental outcomes 1 through 5 university outcome 5, ).**
3. use both Mendelian and non-Mendelian principles to solve genetics problems. **(departmental outcomes 1, 2 and 5, university outcome 5 ).**
4. know and use basic rules of probability to predict the outcomes of various matings. **(departmental outcomes 1, 2 and 5, university outcome 5 and 7 university outcome 3, 5 and 7 ).**
5. use statistical methods to analyze data and test Mendelian hypotheses. **(departmental outcomes 1 and 2, university outcome 3, 5 and 7 ).**
6. understand the nature and function of the “gene” from the molecular to the phenotypic level. **(departmental outcomes 1 through 4 university outcome 5, ).**
7. know and understand DNA and RNA structure and function. **(departmental outcome3, university outcome 5 ).**
8. know and understand basic gene regulation. **(departmental outcomes 2,3 and 4, university outcome 5).**
9. know and understand the value of allelic and other levels of genetic variation to individuals and populations. **(departmental outcomes 2, 4 and 5 university outcome 5, ).**
10. know and understand population genetic effects on gene pools and microevolution. **(departmental outcomes 2, 4 and 5, university outcome 5).**
11. know and understand the relevance of population genetic effects to macroevolution. **(departmental outcomes 1, 2 and 5 university outcome 5, ).**
12. use statistical methods to analyze population data sets to test evolutionary hypotheses relating to selection, migration, mutation and genetic drift. **(departmental outcomes 1, 2 and 5, university outcome 3, 5 and 7 ).**