



COURSE OUTLINE

Course Number:

BIO208

Credits: 4

Course Title:

GENETICS

Hours: 3 lecture/3 laboratory

Required texts:

iGenetics: A Molecular Approach

Peter J. Russell

Benjamin Cummings Publishers, second edition, 2006

Course Coordinator: L. Blinderman

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Catalogue Description:

A survey course examining gene activity at the molecular and organismal levels. Principles of transmission, molecular, and population genetics are covered with emphases placed on advances in genetic technology and applications. The laboratory exercises address topics in heredity, chromosome structure, recombinant DNA, bioinformatics, and other molecular biology techniques. Three hours of lecture and one three hour laboratory per week.

Prerequisites: Successful completion of BIO 102 (C grade or higher) or consent of instructor

Grading

Lecture: The lecture grade is based on examination grades, in-class activities, and homework assignments. The instructor must be informed within 12 hours of a missed exam. *Makeup exams, given only for a valid and documented absence, are discouraged and consist of essay questions.*

Laboratory: The laboratory grade is based on pre-labs, the laboratory notebook, attendance, and participation. The instructor will evaluate student performance throughout the semester. More than one unexcused absence will result in a lower lab grade. *There are no makeup laboratories.*

Lab exams	15%
Lab notebook (includes pre-labs and lab homework)	20%
Lecture exams	55%
Lecture homework , worksheets, presentations	10%

Accommodations

Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson's office is LB221, and she can be reached at (609) 570-3525.

Classroom conduct

The college welcomes students into an environment that creates a sense of community pride and respect.

Attendance

It is a student's responsibility to attend all classes. If a class meeting is missed for any reason, the student is responsible for all content covered, for announcements made in his/her absence, and for acquiring any materials that may have distributed in class. The instructor may not repeat announcements or distribute handouts more than once.

Tardiness

It is expected that students will be on time for all classes.

Behavior

Students are expected to follow ordinary rules of courtesy during class sessions. Engaging in side conversations during class time is distracting to other students. The instructor has the right to eject a disruptive student from the class at any time. For additional information: Refer to the MCCC Student Handbook.

Academic Integrity

Cheating of any kind is not tolerated. This includes copying papers or website information or presenting another person's work as one's own in any way, looking at a student's paper during a test or quiz, looking at notes during an exam or quiz, obtaining information about an exam, quiz, or any other information that other students do not have and the instructor does not intend them to have, talking during an exam or quiz. Write your own papers using your own words. **All violations of academic integrity will be reported to the Academic Integrity Committee.**

Schedule of Lecture Topics

<u>WEEK</u>	<u>TOPIC</u>	<u>CHAPTER</u>
I	DNA	2
II	Transcription	5
III	Gene Expression	6
IV	(continued)	
EXAM 1		
V	Mendelian Genetics and Extensions	11, 13, 4
VI	Chromosomal Basis of Inheritance	12
VII	Chromosome Variations	17
EXAM 2		
VIII	Bacterial Genetics	18
X	(continued)	19
XI	Recombinant DNA Technology	8
XII	(continued)	
EXAM 3		
XIII	DNA mutation, Repair, Transposable Elements	7
XIV	Applications of Recombinant DNA Technology	9
XV	(continued)	
EXAM 4		

Laboratory Schedule

Lab	Topic
1	Lab notebook, Bioinformatics (computer lab)
2	Isolation of DNA from animal or/and plant tissue
3	Human DNA fingerprinting via the polymerase chain reaction (PCR)
4	Electrophoresis, UV spectrophotometry

5	LP#1
6	Mendelian Genetics, Chi Square, Probability, Pedigree analysis
7	Cytogenetics, Karyotyping (computer lab)
8	Restriction enzyme mapping
9	DNA mapping/ electrophoresis
10	LP #2
11	Translation of mRNA (computer lab)
12	Gene Expression: Transformation of bacteria with recombinant plasmid
13	Transformation analysis
14	Human evolutionary Genetics (computer lab)

*The Laboratory Schedule may be revised

LABORATORY SAFETY

Your instructor will call attention to safety precautions.

FOOD AND DRINKS ARE NOT ALLOWED IN THE LABORATORY, ever!

For working with chemicals:

1. Wear gloves and safety goggles
2. In the event of a spill, notify your instructor immediately
3. Wash your hands with soap and water
4. Wipe down your lab bench with disinfectant before and after use
5. Read labels and follow instructions carefully
6. Never use mouth suction in filling pipettes with chemical reagents. Use a suction bulb.

Note the location of:

1. the eye-wash station, fume hood, fire blanket, fire extinguisher, and safety goggles
2. the master shut-off switch for electricity
3. the unobstructed exits

Before leaving, make certain that:

1. all equipment is turned off
2. the chair is pushed in
3. all work surfaces and equipment in the chemical or biological laboratory are thoroughly cleaned and left in a neat condition

THE COURSE INSTRUCTOR RESERVES THE RIGHT TO CHANGE THE SCHEDULE AND GRADING PROCEDURE AT ANY TIME