

COURSE SYLLABUS
Biology Department
Midwestern State University

FUNDAMENTAL GENETICS

Biology 3104

Lecture: TR 9:30 – 10:50AM BO 209

Lab: R 1:00-2:50 pm BO 205

R 3:00-4:50 pm

INSTRUCTOR

Dr. Mike Shipley Office: BO 218C

Phone: 397-4517 E-mail: michael.shipley@msutexas.edu

Office hours: MW 9:00 AM – 10:00 AM, 11:00 AM – 12:00 PM; T 11:00 AM – 12:00 PM;
or by appointment.

REQUIRED TEXTS

Pierce, Benjamin A. 2012. Genetics: A Conceptual Approach, 5th. Ed. W.H. Freeman and Company, New York. ISBN-13: 978-1464109461

Cook, William, David Perez-Guerra, Michael Shipley. 201p. Fundamental Genetics Lab Manual.

GOALS AND OBJECTIVES

The goal of this course is to introduce the student to the mechanisms of heredity, to consider its importance in biology, and to apply the study of genetics to everyday life. This will be achieved through lecture, individual effort through working genetics problems, and laboratory investigations. It is expected that the student will achieve a working knowledge of Mendelian and molecular genetics, and will be able to use this information in their career goals. This course may not be applied to a biology major.

PREREQUISITES

One year of biology (8 credit hours) is the prerequisite for this course.

STUDENT EXPECTATIONS

Class attendance is crucial for maximum performance. All students are expected to attend every class meeting, to be on time, and to stay until dismissed. Excessive absences may result in a student dropped from the course. Bring your textbook to class each day. Students should refer to the current MSU Handbook and Activities Calendar for university policy on academic dishonesty, class attendance, student rights and activities. For example see page 39 for information on class attendance policy and page 3 for the student honor creed.

COVID-19 CONSIDERATIONS

The course will meet face-to-face with no recording or streaming of the lecture material on Zoom. Students who are unvaccinated and are exposed to someone testing positive for COVID are required to self-isolate for a minimum of 10 days. Any student that tests positive for COVID 19 must self-isolate for a minimum of 10 days. During this time the student is responsible for making up all course material. Contact the instructor who will work to accommodate you. Social distancing and masks are encouraged. For COVID information on the MSU Website, including how to properly report a positive status, visit <https://msutexas.edu/coronavirus/index.php>

EXAMINATION MATERIAL

The major exams will cover material presented in the lecture. Students should study the assigned text chapters, review lecture notes, and work assigned problems in preparation for the tests. The final exam will be mostly comprehensive.

GRADE DETERMINATION

The grade for this class will be based upon student's performance on the 4 major exams, the laboratory, and assigned problems. The breakdown for the grade is as follows:

4 major exams (Counting final)	- 60% of grade
Laboratory	- 30% of grade
Assigned problems	- 10% of grade
	100%

The final grade will be based upon the following system:

90 and above	=	A
80 - 89	=	B
70 - 79	=	C
60 - 69	=	D
Below 60	=	F

TOPICAL OUTLINE

<u>Topic</u>	<u>Chapters</u>
A. Introduction to Genetics	1
B. Chromosomes and Cellular Reproduction	2
C. Basic Principles of Heredity	3
D. Sex Determination and Sex-Linked Characteristics	4
EXAM I	
E. Extensions and Modifications of Basic Principles	5
F. Pedigree Analysis and Applications	6
G. Linkage, Recombination and Eukaryotic Gene Mapping	7
H. Chromosome Variation	8
EXAM II	
I. DNA: The Chemical Nature of the Gene	10
J. Chromosome Structure and Organelle DNA	11
K. DNA Replication and Recombination	12
EXAM III	
L. Transcription	13
M. RNA Molecules and RNA Processing	14
N. The Genetic Code and Translation	15

FINAL EXAM (NOT COMPREHENSIVE) - TUESDAY, DEC 7 @ 8:00 AM

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at <http://mwsu.edu/campus-carry/rules-policies>

