Fall 2023

COURSE SYLLABUS
Biology Department
Midwestern State University

FUNDAMENTAL GENETICS
Biology 3104
Lecture: TR 9:30 – 10:50AM BO 213
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 10:30-11:30 AM; TR 11:00-12:30 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, Antonio Castilla-Alvarez, Michael Shipley. 75p. 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.

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

STUDENT EXPECTATIONS
Each student is expected to log into D2L regularly and attend all lab sessions. You should be familiar with D2L as it will be a primary source of communication regarding assignments, examination materials, and general course information. If you experience difficulties, please contact MSU's technical support department by phone at 940-397-4278, or by email at helpdesk@mwsu.edu. Students should refer to the current MSU Handbook and Activities Calendar for university policy on academic dishonesty, class attendance, student rights and activities.

EXAMINATION MATERIAL
The major exams will cover material presented in the lecture. The final exam will be not be comprehensive. Students should study the assigned text chapters, review lecture notes, and work assigned problems in preparation for the tests. Assigned problems will assess comprehension.

GRADE DETERMINATION

The grade for this class will be based upon student's performance on the major exams, the final exam, 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

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

FINAL EXAM (NOT COMPREHENSIVE) - TUESDAY, DEC 12 @ 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.