Introductory Genetics
BIOL 3200(5200), Section A (3 credit hours), Fall Semester 2022

Lecture (BC 3009): Monday and Wednesday 3:30 pm – 4:45 pm

Instructor: Dr. Cristina Calestani
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Office hours:

Tueesday-Thursday 2:00 PM- 4:30 PM
Or by appointment outside office hours (please send me an email to my valdosta.edu account).

Pre-Requisites: MATH 1112 or MATH 1113, BIOL 1107 and BIOL 1108 with a grade of C or better or permission of instructor.

Course Description (as stated in the Undergraduate Catalogue):
A survey of modern genetics, including Mendelian modes of heredity, extensions and variations on Mendelian genetics, chromosomal inheritance and variation, molecular properties of genes, and basic quantification of genetic diversity at the population level.

Course Learning Outcomes

This course learning outcomes support the achievement of the Department of Biology Educational Outcomes 1 through 5, and the VSU General Education Outcomes 3, 5, and 7. By the end of this course the students will be able to:

1. Demonstrate knowledge and comprehension of terminology and basic principles of genetic inheritance at the level of individuals and populations (Biology outcomes 1 through 5; VSU outcomes 3 and 5)
2. Demonstrate comprehension of how genetic variability is produced, maintained or lost, and predict the consequences on individuals, populations and ecosystems (Biology outcomes 2, 3, 4 and 5; VSU outcomes 3 and 5)
3. Demonstrate comprehension, and predict the outcomes of possible interactions between genetic and environmental factors. (Biology outcomes 1, 3, 4 and 5; VSU outcome 3 and 5)
4. Apply basic principles of inheritance to predict the outcome of genetic crosses and mating by using basic probability rules and statistical methods (Biology outcomes 1, 3 and 4, VSU outcome 3 and 5)
5. Analyze genetic data to infer the mode of inheritance of genetic traits (Biology outcomes 1, 3 and 4; VSU outcome 3, 5 and 7)
6. Evaluate the probability/risk of inheritance of genetic traits/diseases as applied to human health, plant and animal breeding. (Biology outcomes 1, 3 and 4; VSU outcome 3, 5 and 7)
7. Describe and demonstrate comprehension of the basic molecular and cellular mechanisms regulating genetic inheritance (Biology outcome 3 and 4; VSU outcomes 3 and 5)
8. Relate the structure and function of DNA/RNA to the development of form and function (phenotype) of the organism (Biology outcomes 3 and 4; VSU outcomes 3 and 5)
9. Demonstrate comprehension of experimental approaches used to test specific hypothesis in classical, population and molecular genetics (Biology outcome 1, 2, 3, 4, 5; VSU outcomes 3 and 5)

Textbook
Genetics Essentials, 5th edition, by Benjamin A. Pierce. Editor, MacMillan Learning

Additional required material
Clicker NXT Device (or cell phone) and a Turning Point Activation Card-6 months (Turning Technologies).

ASSESSMENTS

The course assessments will consist of four exams, online quizzes, and self-reflections on learning.
Extra-credit points can be earned with in-class activities (Clicker questions) and in person attendance to the Peer Alliance Learning (PAL) sessions at the Academic Support Center (https://www.valdosta.edu/asc/).
Exams will be taken during class time and must be turned in by the scheduled end of class.

Photo identification is required for all exams.

Grades will be posted on Blazeview.

Exams (400 pts max.)

- All exams are based on lecture material (powerpoints slides, in-class activities), assigned textbook readings, and the problem sheets posted on Blazeview.
  If you do not attend class on a regular basis and if you do not complete the problem sheets you will not be able to succeed in this course.

- Exams questions are multiple choice, true/false, matching.

- If you fail to attend one of the exams for any reason, you must provide documented evidence (e.g. from doctor, police, etc.) that circumstances beyond your control prevented you from taking the exam. Failure to provide reasonable evidence will result in a grade of 0 for the exam. Makeup exams will be administered at any time during the semester at the discretion of the instructor.

- If you arrive late for an exam you will be allowed to take the exam. However, you must turn in the exam paper at the regular scheduled end of the class. You will not be allowed extra time unless a documentable emergency has occurred.

- After each exam, students are strongly encouraged to review it. You can review an exam during office hours. Exams will not be returned to students.

- **Any student attempting to copy, take pictures or steal a hard-copy of a test, at any time during the semester, will receive an automatic F for the entire course and face disciplinary action for student misconduct.**

Weekly online quizzes (25 points max.)

- **A new quiz will be posted on Blazeview weekly, starting from Friday August 26th**. Quizzes will be open by 5 pm on Friday and will be closed at 11:59 pm on Sunday of the following week (9 days later). Each quiz will have questions on the material covered in class during that week.

- The Instructor will communicate to the class any change to the quiz schedule.

- You will have 3 attempts. The highest quiz grade will be considered. Each quiz question will have only one correct answer. The quiz questions and the order of the multiple answers will be randomized for each attempt, meaning that you might have different questions at each attempt. Note that opening a quiz window without answering will count as one attempt and will receive a grade of zero.

- If you miss a quiz you must provide documented evidence (e.g. from doctor, police, etc.) that circumstances beyond your control prevented you from taking a quiz during the time it was open. Malfunction of your home computer is NOT an acceptable excuse. You can take the quizzes from one of the many computers available to

students in campus. Failure to provide reasonable evidence will result in a grade of 0 for the quiz. Makeup quizzes will be administered at any time during the semester at the discretion of the instructor.

Self-Reflection of Learning (30 pts max)

After each exams, students will take a survey/quiz to reflect on what study strategies worked and/or not worked for that particular exam. The self-reflection reflection will include the development of a plan to improve study strategies and overcome obstacles. You can earn the points listed below by just completing the self-reflection. More detailed instructions will be provided by the instructor.

Extra-credits (23 pts max)

These points will be added to the student total points for the course before calculating the percentage grade. Extra-credit points can be earned by answering the in-class clicker questions and attending in person the PAL sessions at the Academic Support Center (https://www.valdosta.edu/asc/).
In-class activities (**15 points max**) will consist of questions or problems presented during lecture. Students' answers will be recorded in class by using clickers and the grade will be posted on the Blazeview Gradebook.
PAL sessions (8 points max). You can earn 0.5 points for each session attended for a maximum of 16 points.

Grading

Test 1	100 points max
Self-Reflection of Learning 1	15 points (just to complete it)
Test 2	100 points max
Self-Reflection of Learning 2	10 points (just to complete it)
Test 3	100 points max
Self-Reflection of Learning 3	5 points (just to complete it)
Test 4	100 points
Weekly Online Quizzes	25 points
Total	455 points

Extra-credit In-Class Clicker Questions	15 points
PAL sessions	8 points

Grade Distribution	
Letter	**Percentage**
A	90 -100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	≤ 60%

Final grade: (Test points + Self-reflection points + Weekly Online Quizzes + Extra-credit points)/455

NOTE: Graduate students enrolled in BIOL 5200 will have additional assignments and adjusted grading scale in a supplementary syllabus.

Behavior in the Classroom
It is assumed that all students will act in a mature manner in the classroom, showing consideration for their peers and the instructor. Any student who consistently distracts other students or the instructor will be removed from the course. **Cell phones must be set to silent mode in the classroom.**

Cheating or Plagiarism
Incidents of cheating or plagiarism will result in **an automatic F for the course and referral to The Office of Student Conduct for disciplinary action.** For VSU's Academic Integrity Code please see http://www.valdosta.edu/administration/student-affairs/student-conduct-office/
For VSU's Academic Honesty policies and procedure please see http://www.valdosta.edu/academics/academic-affairs/vp-office/academic-honesty-policies-and-procedures.php

Learning Support

The Academic Support Center: The Academic Support Center provides free peer tutoring for most core courses and some upper-division courses. It also offers time management and study skills workshops as well as other learning support services.
Call 333-7570 to make an appointment, or visit the website: https://www.valdosta.edu/asc/

Odum Library provides a variety of services to assist classroom instruction, including library instruction, course reserves, and interlibrary loan. Please see https://www.valdosta.edu/academics/library/ for further information.

Accommodations Statement:
Students with disabilities who are experiencing barriers in this course may contact the Access Office (https://www.valdosta.edu/student/disability/) for assistance in determining and implementing reasonable accommodations. The Access Office is located in University Center Room 4136 Entrance 5. The phone numbers are 229-245-2498 (V), 229-375-5871. For more information, please visit VSU's Access Office or email: access@valdosta.edu. To request reasonable accommodations for pregnancy and childbirth, contact Christina Kidd, Student Conduct Coordinator at chkidd@valdosta.edu. Please note, you will be required to provide documentation from an appropriately licensed medical professional indicating the requested accommodations are medically necessary.

Non-Discrimination and Title IX Statement
Valdosta State University (VSU) upholds all applicable laws and policies regarding discrimination on the basis of race, color, sex (including sexual harassment and pregnancy), sexual orientation, gender identity or expression, national origin, religion, age, veteran status, political affiliation, or disability. The University prohibits specific forms of behavior that violate Title IX of the Education Amendments of 1972. Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs and activities that receive federal funding. VSU considers sex discrimination in any form to be a serious offense. Title IX refers to all forms of sex discrimination committed against others, including but not limited to: sexual harassment, sexual assault, sexual misconduct, and sexual violence by other employees, students or third parties and gender inequity or unfair treatment based on an individual's sex/gender. The designated Title IX Coordinator for VSU is Mr. Darius Thomas. To view the full policy or to report an incident visit: https://www.valdosta.edu/administration/student-affairs/title-ix/

TENTATIVE LECTURE SCHEDULE BIOL 3200 Fall 2022:

Lecture	Date	Topic
1	Aug 15	Introduction to the Course
2	Aug 17	Mitosis, Meiosis and The Development of Gametes I
3	Aug 22	Mitosis, Meiosis and The Development of Gametes II
4	Aug 24	Chromosome Variation
5	Aug 29	*Problem sheet review*
6	Aug 31	Basic Principles of Heredity I
--	Sept 5	**LABOR DAY-NO CLASS**
7	Sept 7	Basic Principles of Heredity II
8	Sept 12	*Problem sheet review*
9	Sept 14	Genetic Pedigrees
--	Sept 19	**EXAM 1 Lecture 2-8**
10	Sept 21	Extensions and Modifications of Basic Principles I
11	Sept 26	*Problem sheet review*
12	Sept 28	Extensions and Modifications of Basic Principles II
13	Oct 3	Extensions and Modifications of Basic Principles III
14	Oct 5	*Problem sheet review*
--	Oct 10	**FALL BREAK-NO CLASS**
15	Oct 12	Linkage Recombination and Eukaryotic Gene Mapping I
--	Oct 17	**EXAM 2 Lecture 9-14**
16	Oct 19	Linkage Recombination and Eukaryotic Gene Mapping II
17	Oct 24	*Problem sheet review*
18	Oct 26	Quantitative Genetics
19	Oct 31	Population and Evolutionary Genetics I
20	Nov 2	Population and Evolutionary Genetics II
21	Nov 7	*Problem sheet review*
22	Nov 9	DNA Replication
--	Nov 14	**EXAM 3 Lecture 15-21**
23	Nov 16	Transcription and RNA Processing
24	Nov 21	Translation and *Problem sheet practice*
--	Nov 23	**THANKSGIVING HOLIDAYS-NO CLASS**
25	Nov 28	Control of Gene Expression in Prokaryotes
26	Nov 30	Control of Gene Expression in Eukaryotes
27	Dec 5	*Problem sheet review*
	Dec 8 Thursday 2:45-4:45 PM	**EXAM 4 Lecture 22-27**