

BIO 210

Genetics

Fall 2020

Professor Contact Information

Dr. Ashley B. Morris*Office:* Townes South 171J*Email:* ashley.morris@furman.edu*Web:* themorrislab.weebly.com

Class / Lab Meeting Times

Lecture*Time:* MWF 9:10-10:00 AM*Room:* *Online***Lab***Time:* M 3:00-5:50 PM*Room:* *Online*

Office Hours

I am available by zoom during regular “business” hours (8AM – 5PM EST) on most days (M-F). If conditions allow, I am open to on-campus meetings as well.

Final Exam Time

Date: Tues, 8 Dec*Time:* 8:30-11:00 AM*Room:* *Online*

Welcome to Genetics!

In this class, you will come to recognize that genetics is a force in almost every aspect of our daily lives. From the minute to the massive, the invisible to the obvious, all of it has the potential to be driven by genetic inheritance through the differential expression of genes in both time and space. Understanding the basics of genetic inheritance and being exposed to a few more complex concepts will give you greater insight into many aspects of life that you currently take for granted.

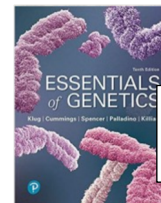
Learning Objectives

We will use problem-solving to drive the learning process. By the end of this class you will be able to:

- ✓ Analyze data to deduce patterns and mechanisms of inheritance
- ✓ Describe the molecular anatomy of a gene and understand how gene function varies in time and space
- ✓ Interpret how genetic variation changes over time within and among populations

Plus so much more!

Daily Resources



Recommended text:
Klug et al. (2020)
Essentials of Genetics, 10th ed.



Check daily:
All course materials and grades will be posted in **Moodle**.

Course Expectations



Complete the steps.

Weekly engagement is provided in a stepwise fashion on Moodle.



Engage.

All students must contribute to online discussions. Insightful comments are expected!

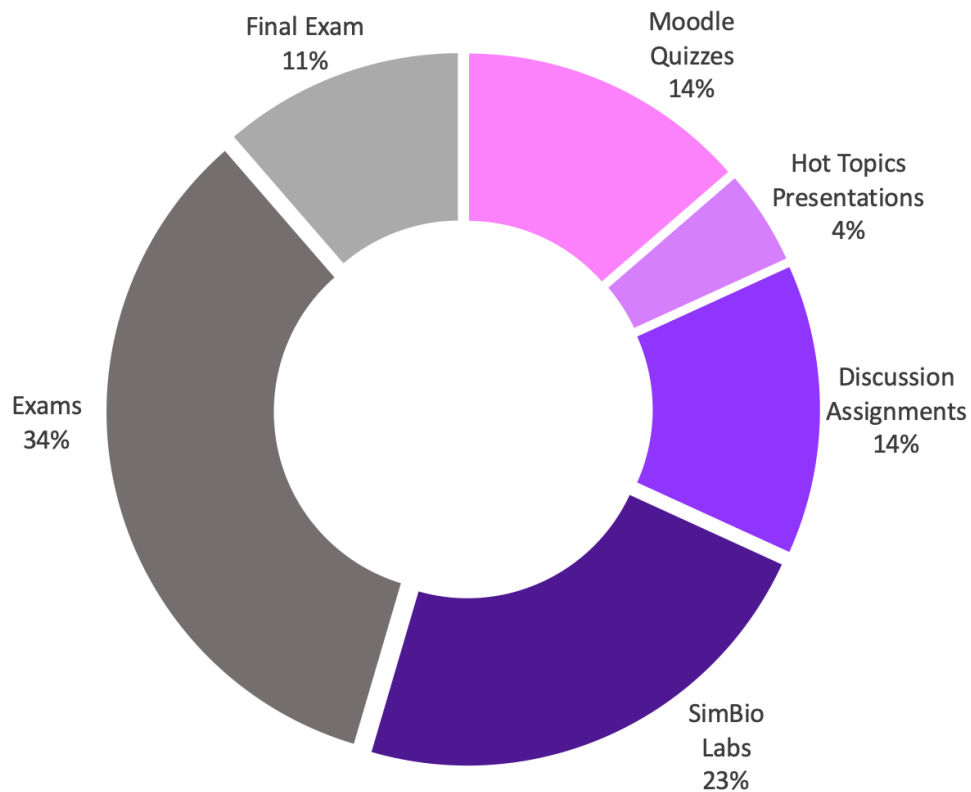


Respect diversity.

Diversity of race, gender, sex, age, sexual identity, ability, culture, religion, and socioeconomic status lead to more impactful discussions. Offensive language or otherwise disrespectful behavior will not be tolerated in this space.

Graded items

All graded items are listed on the course schedule.



Grading scale

A+ = 97-100	B+ = 87-89	C+ = 77-79	D+ = 67-69	F = 59 and below
A = 93-96	B = 83-86	C = 73-76	D = 63-66	
A- = 90-92	B- = 80-82	C- = 70-72	D- = 60-62	

All assignments are weighted equally. Final grades are calculated by total points earned divided by total points possible. Final grades are rounded to the nearest whole number (e.g., 89.44 = 89, while 89.50 = 90). I will not round up to improve letter grades. The grade you earn is the grade you will receive. **There will be no opportunity for extra credit.**

Departmental Statement on Diversity, Equity, and Inclusion

Furman University and the Biology Department are committed to maintaining an academic environment which celebrates diversity and we will work tirelessly to uphold equity for all individuals and identities, including but not limited to gender, race, religion, spiritual belief, sexual orientation, geographic origin, socioeconomic background, ideology, world view, and varied abilities. If you have witnessed or have been the victim of a bias incident, we urge you to report it immediately so necessary action may be taken: https://cm.maxient.com/reportingform.php?FurmanUniv&layout_id=3.

Academic Support during COVID-19

The Furman Biology Department is also committed to ensuring that every student is provided equitable opportunities for success in our courses. If I can provide you with any assistance in obtaining course materials or technological requirements for this course, please do not hesitate to contact me. Furthermore, the University has funds available to assist students and families in the form of additional need-based institutional grant, CARES Act funding, and funds generated through the Piper Grant. Students can request support by completing [the Student Emergency Fund Request For Assistance](#) Form located on both the Enrollment Services and Financial Aid websites. Students can request support by completing the form more than once and can also submit special financial circumstances to the Financial Aid Office. Finally, ITS has a limited supply of laptops available for students who do not have access to a laptop at home. Students who would like to request a laptop for the semester should contact Stephanie Boyd. Laptops will have Windows10 and will be shipped to student's homes if you are not living on campus.

COURSE CALENDAR		
<i>Dates are subject to change at the discretion of the instructor.</i>		
Day	Date	Topics & Assignments
WED	19 Aug	Introduction
FRI	21 Aug	Mitosis and Meiosis (Klug CH 2)
MON	24 Aug	Mendelian Inheritance (Klug CH 3) <i>SimBio Lab 1: Meiosis Explored is available at 3PM today</i>
WED	26 Aug	X-linkage and sex-limited or sex-influenced traits (Klug CH 4)
FRI	28 Aug	Probability and Chi-square (Klug CH 3) <i>DUE: Moodle Quiz 1 at 5PM today (10 points)</i>
MON	31 Aug	Pedigrees (Klug CH 3) <i>DUE: SimBio Lab 1 at 3PM today (20 points)</i> <i>SimBio Lab 2: Mendelian pigs is available at 3PM today</i>
WED	2 Sep	Incomplete & codominance, multi-allelic systems (Klug CH 4)
FRI	4 Sep	Epistasis (Klug CH 4) <i>DUE: Moodle Quiz 2 at 5PM today (10 points)</i>
MON	7 Sep	<i>DUE: EXAM 1 at 5PM today (50 points)</i>
WED	9 Sep	Sex determination and dosage compensation (Klug CH 5)
FRI	11 Sep	Genetic linkage 2-factor crosses (Klug CH 7) <i>DUE: Moodle Quiz 3 at 5PM today (10 points)</i>
MON	14 Sep	Genetic linkage 3-factor crosses (Klug CH 7)
WED	16 Sep	Genetic recombination and mapping in bacteria (Klug CH 8)
FRI	18 Sep	<i>Critical analysis of science in the news (20 points)</i>
MON	21 Sep	Chromosomal mutations (Klug CH 6) <i>SimBio Lab 3: DNA explored is available at 3PM today</i>
WED	23 Sep	Polyploidy (Klug CH 6)
FRI	25 Sep	DNA structure (Klug CH 9) <i>DUE: Moodle Quiz 4 at 5PM today (10 points)</i>
MON	28 Sep	DNA replication (Klug CH 10)
WED	30 Sep	Transcription (Klug CH 12)
FRI	2 Oct	Translation (Klug CH 13) <i>DUE: Moodle Quiz 5 at 5PM today (10 points)</i>
MON	5 Oct	<i>DUE: EXAM 2 at 5PM today (50 points)</i> <i>SimBio Lab 4: How diseases spread is available at 3PM today</i>
WED	7 Oct	<i>TBD</i>
FRI	9 Oct	<i>DUE: Viruses as a fourth domain position paper before 9AM today (10 points)</i>
MON	12 Oct	Regulation of gene expression in bacteria (Klug CH 14)
WED	14 Oct	Regulation of gene expression in eukaryotes (Klug CH 15)

FRI	16 Oct	<i>DUE: Ghost in your genes documentary questions before 9AM today (10 points)</i>
MON	19 Oct	Recombinant DNA technology (Klug CH 17)
WED	21 Oct	Genetically Modified Organisms (GMOs)
FRI	23 Oct	<i>Case study on GMOs (10 points)</i>
MON	26 Oct	<i>DUE: EXAM 3 at 5PM today (50 points)</i>
WED	28 Oct	Developmental Genetics (no book chapter)
FRI	30 Oct	Quantitative Genetics (Klug CH 201) <i>DUE: Moodle Quiz 6 at 5PM today (10 points)</i>
MON	2 Nov	Population genetics (Klug CH 21) <i>SimBio Lab 5: Sickle-cell alleles is available at 3PM today</i>
WED	4 Nov	Population genetics (Klug CH 21) con't
FRI	6 Nov	<i>Guest seminar on evolutionary genetics</i>
MON	9 Nov	Evolutionary Genetics (Klug CH 21)
Wed	11 Nov	Evolutionary Genetics (Klug CH 21) con't
FRI	13 Nov	<i>DUE: PBS First Peoples documentary questions before 9AM today (10 points)</i>
MON	16 Nov	<i>Hot topics presentations (20 points)</i>
WED	18 Nov	<i>Hot topics presentations con't.</i>
FRI	20 Nov	Wrap up and prepare for Final Exam
TUES	8 Dec	<i>Final Exam 8:30 – 11:00 AM (50 points)</i>