

Biology 2410c Spring 2023 Syllabus



Course at a glance
Molecular and Cellular Biology, section 501
Tuesdays and Thursdays, 9:00-10:15
Valencia Arts and Sciences room 140

Welcome to Genetics! This class covers introductory concepts vital for science majors as well as relevant topics to molecular and cellular biology including; cell communication, the cell cycle, sexual and asexual reproduction, genetic inheritance, DNA replication and maintenance, DNA sequencing technology, gene expression, and control of gene expression.



Course Learning Objectives:

- 1.) Students will display an understanding of the processes and outcomes of nuclear division by mitosis and meiosis (Ch. 12 & 13)
- 2.) Students will show comprehension of patterns of inheritance by Mendel's laws, Punnet square analysis, gene linkage, and sex-linked inheritance (Chapter 14).
- 3.) Students will exhibit familiarity with basic structure of DNA and how the information of genes is expressed and controlled in the cell (Chapters 15-19).
- 4.) Students will demonstrate knowledge of genetic engineering and genomics.
- 5.) Students will understand basic concepts of development.

The goal of this class is to help you become literate in these scientific concepts and be able to apply them in biology as you move forward.

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Office: HS 100B

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Email and Canvas messaging are the best contact methods.

Office phone: 505-925-8726

Drop-in hours*:

Mondays: 10:30-12:00

Tuesdays 10:30-12:00

Wednesdays: 10:30-12:00

Thursdays: 12:00-1:30

*And really, anytime my door is open outside of these times.

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Course Webpage:

We will be using the new Canvas platform this year, canvas.unm.edu. This will largely serve as a repository for documents that will be handed out physically in class (the syllabus, homework assignments, class activities, etc). Downloadable copies of the lecture slides will be available here as well. You will mostly be able to find these items in the 'files' tab of the course Canvas page.

Textbook:

Biological Science, Scott Freeman, Kim Quillin, Lizabeth Allison, Michael Black, Greg Podgorski, Emily Taylor and Jeff Carmichael. 2017. 7th edition, Pearson Higher education.



Hi all,
Welcome to biology 2110c! I am a molecular and evolutionary biologist, specializing in plant evolution and systematics. Currently, my research interests include systematics of Piñon pine in New Mexico as well as the microbial diversity in the Middle Rio Grande. When I am not working, I love music and running. I am excited to work with you all this spring!

Tips for Success in this Course:

- Read the sections of the book covered in each class.
 - Complete homework assignments before the quizzes over that chapter.
 - Actively participate in your group.
- Communicate with instructor in the case of absence.



COVID-19 Health and Awareness: [COVID-19 Health and Awareness](#). UNM is a mask friendly, but not a mask required, community. To be registered or employed at UNM, Students, faculty, and staff must all meet UNM's [Administrative Mandate on Required COVID-19 vaccination](#). If you are experiencing COVID-19 symptoms, please do not come to class. If you have a positive COVID-19 test, please stay home for five days and isolate yourself from others, per the [Centers for Disease Control \(CDC\) guidelines](#). If you do need to stay home, please communicate with me so that I can work with you to provide alternatives for course participation and completion. UNM faculty and staff know that these are challenging times. Please let me, an advisor, or another UNM staff member know that you need support so that we can connect you to the right resources. Please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.

Course Graded Assignments:

Homework: ~One homework assignment per chapter will be given. These will serve as chapter summaries to prepare you for each chapter's quiz and exam. 10 total assignments will be given with each assignment worth 10 points each. They will be due by the exam over the material they cover (for example, the chapter 11 homework will be due by the date of the first exam).

Exams: 4 exams will be given. The first 3 will be worth 100 points each. The final exam will be cumulative, comprised of new material covered since the third midterm as well as all previous material. The final exam will be worth 150 points.

Quizzes: One quiz per chapter will be given, with the quiz coming at the beginning of the class period following the class where that chapter is finished. These quizzes will be taken in class and immediately followed by the next chapter or topic. Each quiz will be worth 10 points, with your lowest quiz grade being dropped.

Class Participation: Class participation; both in whole-class discussions and group work are essential to this course. As such, 70 of your 800 points possible in the course will come from class participation. These points will be allotted based on: Regular attendance, being engaged in classwork, actively taking notes in class, and completion of group activities.

ECURE: Regular participation and completion of the ECURE assignments is expected. These will include a mixture of lab and written work. Some of this you will complete in the lab period, others will require work outside of class time.

Title IX: Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus. Please note that, because UNM faculty, TAs, and Gas are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see:

<https://policy.unm.edu/university-policies/2000/2740.html>.



100 points: Homework assignments (10 @ 10 points each)

50 points: In class activities/class participation

100 points: Quizzes

300 points: Exams (3 exams @ 100 points each)

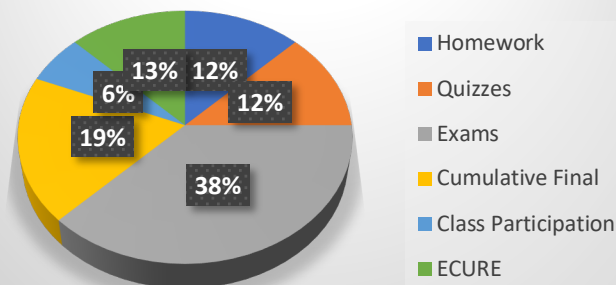
150 points: Cumulative final exam

100 points: ECURE assignments & Participation

= 800 Total points

100%=A+, 92-99=A, 90-91=A-, 89=B+, 82-88=B, 80-81=B-, 79=C+, 72-78=C, 70-71=C-, 69=D+, 62-68=D, 60-61=D-,

Grade proportions



ECURE:

This semester, this section will be completing a CURE (Course-based Undergraduate Research Experience). The goal of this program is to increase exposure of research to more undergraduate students than are typically able to have traditional research experiences. Research has shown many benefits to these experiences including improved retention, increased sense of belonging and an increased interest in science. During this semester, working in groups, each group will complete a research project that will aim to uncover novel information in the field of biology. This project will be composed of four phases:

- 1.) Prep: Background research to define a problem that you will investigate this semester.
- 2.) Perform: Conduct the experiments to test your hypothesis.
- 3.) Analyze: Interpret the data that you collect in your experiment.
- 4.) Present: Share your findings with the class.

During the semester, you will be guided by your instructor in how to carry-out each step. I will aid you in all these phases to make sure that your project is doable, that you are managing your time well, and that you are using proper means to address your problem and analyze your data.

CURE learning Map:

Learning Goals:	Learning Objectives:	Evidence from Learning Activities
1.) Gain necessary skills in implementing the scientific method.	1.) Students will be able to find and critique relevant literature for a given topic.	1.) Prepare a bibliography for their research posters. 2.) Literature scavenger hunt.
2.) Gain appreciation for modern biological research methods	1.) Students will be able to use the next-generation sequencer. 2.) Students will be able to complete the preparation of samples for sequencing. 3.) Students will be able to analyze and interpret results of next-generation sequencing of environmental samples.	1.) Collection of environmental samples. 2.) Preparation and description of the processes occurring in the preparation of environmental samples for next-generation sequencing. 3.) Description of how next-generation sequencing works and comparing that to dideoxy sequencing.
3.) Share knowledge gained to a broader population.	1.) Students will be able to prepare an organized and clear poster of their project. 2.) Students will be able to succinctly describe their research project.	1.) Poster session. 2.) Group assessment. 3.) Peer assessment.

Dates	Subjects covered	Homework/ Quizzes
1/17/23 1/19/23	Course Introduction, Chapter 11 part 1 Chapter 11 part 2: Extracellular materials	
1/24/23 1/26/23	Chapter 12 part 1: Mitosis Chapter 12 part 2	Quiz 1
1/31/23 2/02/23	Chapter 13 part 1: Meiosis Chapter 13 part 2	Quiz 2
2/07/23 2/09/23	Exam 1 Review Exam 1 (Chapters 11-13)	Quiz 3 Homework 1,2, & 3 due.
2/14/23 2/16/23	Chapter 14: Chapter 14	
2/21/23 2/23/23	Chapter 15 Chapter 15	
2/28/23 3/02/23	Chapter 20 Chapter 20	
3/07/23 3/09/23	Exam 2 Review Exam 2 (Chapters 14, 15, & 20)	Homework 4, 5, & 6 due
3/14/23 3/16/23	Spring Break: No Class Spring Break Woo!	
3/21/23 3/23/23	Chapter 16 Chapter 16	
3/28/23 3/30/23	Chapter 17 Chapter 17	Quiz

4/04/23	Chapter 18	
4/06/23	Chapter 18	
4/11/23	Exam 3 Review	
4/13/23	No Class	
4/18/23	Exam 3 (Chapters 16, 17, & 18)	
4/20/23	Chapter 19	
4/25/23	Chapter 19	
4/27/23	Poser session	
5/02/23	Wild Card	
5/04/23	Exam 4 Review	
5/11/2023	Cumulative Final Exam	