

BIOL 311 Genetics (3 credits)
New Mexico Institute of Mining and Technology
SPRING 2019
MWF 11-11:50 Weir 202

INSTRUCTOR:

Dr. Linda C. DeVeaux

Office: 209 Jones Annex

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COURSE DESCRIPTION:

Catalog description: An overview of the storage, transmission and expression of biological information.

Further description: This course introduces basic concepts in prokaryotic and eukaryotic genetics, including genome organization, DNA replication, recombination, repair, and regulation of gene expression. In this course, you will learn the genetic basis of heredity, the fundamental role of DNA recombination, repair, and mutagenesis in creating genetic variability within populations, and the importance of genetic variability and natural selection in the ongoing process of evolution.

PREREQUISITES: BIOL 111 and 111L

PLACE IN CURRICULUM: This is a sophomore/junior level required course for majors in Biology.

COURSE GOALS:

- To introduce the principles of transmission of genetic traits
- To teach the molecular basis of genetic transmission and structures involved
- To introduce current genetic trends in medicine, molecular biology and biotechnology
- To teach principles of genetic technologies and their applications

STUDENT LEARNING OUTCOMES:

After completion of this course, students are expected to be able to

- Describe and apply principles of classical genetics, molecular biology and biotechnology
- Understand the molecular basis of inheritance, and the biomedical implications
- Appreciate the implications of genetic technologies in current problems in human health
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PROGRAM EDUCATIONAL OBJECTIVES:

Our graduates will be able to use basic principles of science to analyze, to explain, and to apply biological information and concepts. Our graduates will be able to design and implement biological research and report findings orally and in writing.

COURSE REQUIREMENTS:

Required textbook: Introduction to Genetic Analysis, Eleventh Edition, Griffiths, Wessler, Carroll and Doebly.

Required supplement: Homework assignments are administered through **Sapling Learning**. You must purchase this supplement:

STUDENT INSTRUCTIONS

- Go to www.saplinglearning.com/login to log in or create an account.
- Under Enroll in a new course, you should see **Courses at New Mexico Institute of Mining and Technology (New Mexico Tech)**. Click to expand this list and see courses arranged by subject. Click on a subject (**Genetics**) to see the terms that courses are available.
- Click on the term to expand the menu further (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the school year).

- Once the menus are fully expanded, you'll see a link to a specific course. If this is indeed the course you'd like to register for, click the link.
- Review the [system requirements](#) and confirm that Flash is updated and enabled in your browser.
- **Need Help?** Our technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support please open a service request by filling out the webform: <https://macmillan.force.com/macmillanlearning/s/contactsupport>.
- The following link includes more detailed instructions on how to register for your course: <https://macmillan.force.com/macmillanlearning/s/article/Sapling-Learning-Registering-for-courses>.

Additional supplementary reading material provided in Canvas should be considered required reading unless designated otherwise. All students should read the chapters in the textbooks prior to each class meeting.

Students are expected to:

- attend class regularly
- read the associated chapters in the textbook prior to class
- check Canvas and NMT email for class announcements at least daily
- complete and turn in homework
- participate in class discussions and problems
- take exams at the scheduled time
- ASK QUESTIONS IN CLASS OR COME TO OFFICE HOURS

DESCRIPTION OF INSTRUCTIONAL METHODS:

The class is primarily based on lectures, delivered as PowerPoint presentations, which will be made available as .pdf files online following each lecture. Student participation in discussion and review, which is an essential component of the course, will be incorporated into grading through unannounced quizzes and in-class problems.

No make-up exams or quizzes will be arranged except under extraordinary circumstances. Please see the instructor as soon as possible. Additional documentation may be required.

EVALUATION PROCEDURES:

4 midterms + 1 final	60%	(each midterm is 10%; final is 20%)
Quizzes	10%	
Class problems	10%	
Homework	20%	

There will be no make-up exams or quizzes except in the case of extraordinary circumstances. Homework is due on the date indicated, and late assignments will be marked down at the instructor's discretion. Students may work together on homework. However, it is in your interest to know how to do these problems yourself. Copying the answers from the internet is strictly forbidden. These rules apply to rewrites, if allowed.

Grading scale: 100-90, A; 89-80, B; 79-70, C; 69-60, D; <60, F.

I reserve the right to utilize the +/- grades for borderline situations.

TENTATIVE COURSE SCHEDULE (subject to change):

Date	Chapter	Topic
January 14-January 30	1,2,3	Transmission Genetics: Classical Mendelian
February 4		EXAM 1
February 1-February 15	4,6	Recombination and Gene interactions
February 20		EXAM 2
February 18-March 8	7,8,9,11	DNA to Phenotype: Structure and Regulation
March 13		EXAM 3
March 11-April 8	12,15,16	Regulation and Mutation
April 12		EXAM 4
April 10-May 1	17, 18, 10*	Variation, Population Genetics and Biotechnology*
May 2-May 7		FINALS WEEK
	*time permitting	

ACADEMIC MISCONDUCT:**Academic Honesty:**

New Mexico Tech's Academic Honesty Policy for undergraduate students is found in the student handbook: [Student Handbook](#)

You are responsible for knowing, understanding, and following this policy. Acts of dishonesty in class activities include cheating on exams and quizzes, and copying text from ANY source, including the internet, and passing it off as your own work. Copying of homework answers from the internet, for example, is considered cheating (and plagiarism). Instructors are obligated to report dishonesty, and I will follow University policy. Violators will be given an appropriate penalty, such as reduction of grade or expulsion from the class.

USE OF ELECTRONIC DEVICES:

Cell phones must be set to "vibrate" during lectures. No recording of lectures will be permitted, except through the ACT. Laptops may be required for some class sessions. Please ensure that they are charged prior to class. No electronic devices will be allowed during exams. Calculators may be allowed at instructor discretion.

Counseling and Disability Services:**Reasonable Accommodations**

New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office of Counseling and Disability Services (OCDS) as soon as possible. To schedule an appointment, please call 835-6619.

Counseling Services

New Mexico Tech offers mental health and substance abuse counseling through the Office of Counseling and Disability Services. The confidential services are provided free of charge by licensed professionals. To schedule an appointment, please call 835-6619.

Respect Statement:

New Mexico Tech supports freedom of expression within the parameters of a respectful learning environment. As stated in the New Mexico Tech Guide to Conduct and Citizenship: "New Mexico Tech's primary purpose is education, which includes teaching, research, discussion, learning, and service. An atmosphere of free and open inquiry is essential to the pursuit of education. Tech seeks to protect academic freedom and build on individual responsibility to create and maintain an academic atmosphere that is a purposeful, just, open, disciplined, and caring community."