

GENETICS (BIOL 3320) – SPRING 2020

Instructor: Jeffrey T. Olimpo, Ph.D.

Office Hours: Virtual hours to be held via Zoom (by appointment only)

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*In an effort to ensure that your privacy is maintained, office hours will be held virtually on an individual basis. If you would like to schedule an appointment, please send me an e-mail. I'm here to help!

COURSE DESCRIPTION

Welcome to *the study of genes, genetic variation, and heredity!* This course examines the field of Genetics with a particular emphasis on the nature and functions of hereditary material, including the experimental procedures and data that have led to our current understanding of Genetics concepts. Applications of Genetics to other areas of science will also be discussed.

COURSE GOALS/OBJECTIVES

This course is designed to provide students with a broad introduction to the field of Genetics. Upon completion of the course, students will be able to:

- Identify and describe the processes wherein DNA serves, ultimately, as a template for the synthesis of proteins
- Compare and contrast various patterns of Mendelian and non-Mendelian inheritance, as well as apply knowledge of these patterns to both construct and evaluate pedigrees
- Understand the central theories/methods that define various Genetics subdisciplines
- Demonstrate attitudes important to the scientific community such as discerning cause-effect relationships, making evidence-based claims, and synthesizing facts from multiple sources in order to understand situations as a whole

COURSE TEXTBOOK, RESOURCES, & MATERIALS

1. *Genetics: A Conceptual Approach (6th Ed.)*; Benjamin A. Pierce.
W.H. Freeman, Publishers; ISBN-13: 9781319127121

* **NOTE:** The textbook is **not required** for this course, and all assignments and exams will be structured around the lectures and activities given in class. However, the textbook is a

recommended reference for reviewing material that you may have found particularly complex or need further clarification on before exams.

2. *OpenStax* Textbook: The *OpenStax* site provides both online and PDF versions of a general Introductory Biology textbook (<https://openstax.org/details/books/biology-2e>). Please note that Chapters 11-17 are most relevant to this course.
 3. Pencils, calculators, pens, etc.
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ACADEMIC INTEGRITY

As members of a scholarly community dedicated to healthy intellectual development, students and faculty are expected to share the responsibility of maintaining high standards of honesty and integrity in their academic work. All material for this course must be your work and no one else's. **Cheating or plagiarism in any form will not be tolerated.** This includes, but is not limited to, copying someone else's work on an assignment or exam and using banned material while taking exams (e.g., iPods or cell phones). Please note that all suspected instances of plagiarism or academic dishonesty will be referred to the Dean of Students Office in accordance with UTEP policies and procedures.

The honor code also states that all members of the UTEP community are entrusted with the responsibility to uphold and promote five fundamental values: Honesty, Trust, Respect, Fairness, and Responsibility. These core elements foster an atmosphere, inside and outside of the classroom, which serves as a foundation and guides the UTEP community's academic, professional, and personal growth. Endorsement of these core elements by students, faculty, staff, administration, and trustees strengthens the integrity and value of our academic climate.

COMMUNICATIONS

When you e-mail me, please include a proper subject, any message you are responding to, the course name and CRN, as well as your name. Please use your UTEP account to ensure the e-mail is not blocked by the university's spam filter. If you e-mail me directly from our Blackboard course, essential information like the course name and section will automatically be included. I will do my best to respond to your e-mail within 24-48 hours. If you do not receive a response from me in this timeframe, I ask that you please re-send your e-mail. Ensure that you regularly check the e-mail account listed for you in Blackboard, as this is where I will send all communications.

CENTER FOR ACCOMMODATIONS AND SUPPORT SERVICES

Students with disabilities who wish to request accommodations must be registered with the Center for Accommodations and Support Services (CASS) Office in Room 106 of the Union East Bldg. You may contact them at (915) 747-5148 or cass@utep.edu for more information.

TECHNICAL SUPPORT

The IT Support Team can assist with Blackboard, password resets, and student e-mail accounts. Hours and other helpful information can be found at <http://www.helpdesk.utep.edu>.

COURSE GRADING & EXPECTATIONS

COURSE GRADING:

- Exams #1 – #3 65% (lowest grade will be dropped)
- Coronavirus Project (Final) 25%
- Course Participation 10%

A = 90 – 100%	D = 60 – 69%
B = 80 – 89%	F = <60%
C = 70 – 79%	

I may, at times, distribute extra credit that is designed to reinforce course concepts. It is your choice whether or not to complete these assignments. Please also note that the “+/-” grading system will not be used in this course as per departmental and university policies.

ATTENDANCE

Your attendance and participation in all parts of this course are expected, to the best of your ability. Given the transition to remote instruction, attendance is defined as the viewing of all online lecture materials, submission of all assignments, and completion of online exams (i.e., more than merely accessing the course). Please note that my priority is to ensure that you are able to successfully complete the course and meet your own learning goals this semester. Therefore, I **strongly encourage** you to reach out to me via e-mail in the event that you have difficulty accessing material, require additional time on an assignment due to extenuating circumstances, etc. I will make every effort to assist you as best as I am able.

BLACKBOARD

This class makes extensive use of Blackboard® (<https://adminapps.utep.edu/blackboardlearn>). You will use Blackboard to download video lectures, access assignments, download or print course materials, complete exams (as appropriate), and check your grades. Please note that your login and password are the same as you would use to access your UTEP e-mail account. Should you encounter any difficulties accessing Blackboard®, please refer to the section above on technical support.

LECTURES

Please note that our class will meet **asynchronously** for the remainder of the semester. This means that you may view lecture content at your own convenience (although a recommended schedule is provided later in this syllabus). Assignments and exams are the only items that **MUST be completed by or on the date specified!** In order to increase access to lecture content, please note that each week's "Lecture Materials" folder will contain (at minimum) three items: (a) completed versions of that week's lecture notes; (b) a video lecture for each topic presented that week, per the course schedule; and (c) an audio-only version of each lecture. In addition, a discussion board will be available in each week's folder, which will serve as a place to post general comments, concerns, and questions related to that week's material. As a rule of thumb, it is in your best interest to print the PowerPoint slides *prior* to each day's lectures and then add notes as you listen to the lecture recordings. Furthermore, you may want to write down any questions that you have in the margin as you are listening; that way, you can submit the questions to the discussion board at a later date. Importantly, video- and audio-lectures can be downloaded and played (including fast-forwarding/rewinding) as often as you would like, so do not hesitate to revisit them as necessary.

MIDTERM & FINAL EXAMS

Each of the first three exams will cover material from the lectures directly preceding it, not including material covered on previous exams (if applicable). You are required to complete all examinations. Exams not taken will be averaged in as a grade of zero. While we have already completed the first two exams in class, please note that **the third exam will be delivered online via Blackboard®**. This exam will be available on **Thurs., 4/16/2020, from 8:00am – 8:00pm (MT)**. As was the case previously, this exam will consist of 50 multiple-choice and T/F questions, and you will have 80 min. to complete the exam once you open it. Note that you **MUST** complete the exam in a single sitting once you begin.

PLEASE PREPARE!! Although the third exam will take place online and you have access to the entirety of your lecture materials, the questions will be presented to you in a random sequence, so you must be prepared. Please note that no make-up examinations will be given without prior approval.

There will not be a final exam for this course. Instead, the Coronavirus project outlined below will serve as the capstone assessment.

CORONAVIRUS PROJECT (FINAL)

Genetics is a complex and multi-faceted subject, and we will not (unfortunately) have time this semester to unpack and explore all aspects of the discipline. While this is the case, students are often interested in other areas of Genetics because of their connection to overall human

development and health. The recent COVID-19 outbreak provides an unprecedented opportunity to learn more about this disease (and the earlier SARS outbreak) and its impact on both the El Paso border region and the world. For this project, you will explore aspects of the aforementioned outbreaks by: (a) investigating the etiology, symptoms, modes of transmission, and established prevention measures outlined for COVID-19 and their relation to the 2002 SARS outbreak; (b) analyzing data associated with the COVID-19 outbreak; and (c) constructing your own recommendations for effectively and efficiently addressing the spread of disease within our community. Specific instructions for completing each portion of the project will be distributed on a week-by-week basis, in accordance with the lecture schedule. **All portions of the project will be due no later than 5:00pm on Thursday, May 14th.**

COURSE PARTICIPATION

Your continued participation in the course will assist you in gaining the most from this experience and will give us an opportunity to continue to grow as a community of learners. Thus far, we have made frequent use of embedded thought questions within each lecture, and I have asked you to complete in-class activities/case studies on various topics. These exercises have helped me gain a better understanding of how to best structure the course in a way that will allow you to be successful and meet your own personal learning goals. While it is no longer feasible to implement many of these exercises in an online context, I want to recognize your invaluable contributions to our learning environment. As such, points for course participation will be determined on the basis of two items, as follows: (1) submission of the gene expression case study assignment that was distributed earlier this term; and (2) posting a picture that you took of *anything* related to the topic of Genetics to Blackboard®. In order to accomplish this latter task, please navigate to the “Genetics Photos” link on the main page of our Blackboard® site.

END-OF-TERM LECTURE SCHEDULE

Wk.		Date	Lecture Topics	Textbook Chapters ^a
UNIT #3: Evolutionary, Population, and Quantitative Genetics				
9	T	Mar. 17	~~ SPRING BREAK ~~	-
	R	Mar. 19	~~ SPRING BREAK ~~	-
10	T	Mar. 24	~~ CLASSES CANCELED ~~	-
	R	Mar. 26	~~ CLASSES CANCELED ~~	-
11	T	Mar. 31	Sex-linked Genetics Non-Mend. Genetics	5, 11
	R	Apr. 2	Inheritance Patterns and Pedigrees	6
12	T	Apr. 7	Population Genetics I	25
	R	Apr. 9	Population Genetics II	25
13	T	Apr. 14	Evolutionary Genetics (Introduction)	26
	R	Apr. 16	~~ EXAM THREE ~~	
UNIT #4: "Hot Topics" in Genetics				
14	T	Apr. 21	DNA Techniques and Biotechnology	19
	R	Apr. 23	Genomics/Proteomics I	20
15	T	Apr. 28	Coronavirus Project: Part I	-
	R	Apr. 30	Coronavirus Project: Part II	-
16	T	May 5	Coronavirus Project: Part III	-
	R	May 7	Open Work Period/Submission Day	-

*** Please note that the course drop date is March 27th.**

**** Disclaimer: I reserve the right to change the contents of this syllabus due to unforeseen circumstances. Students will be given notice of relevant changes through Blackboard and e-mail. Exam dates will **NOT** change.**