**Class Information:**

BIOL 3320 will be held as an in-person course for the duration of the Spring Semester. The course materials can be found online through Blackboard. The text for the course is OPTIONAL.

Meeting Times: Monday's and Wednesday's 12:00pm – 1:20pm
Location: UGLC 346

**Instructor Information:**

Instructor: **Dr. Tom McCabe** (he/him)
Email: tmmccabe@utep.edu
* Email is the best way to contact me. Please allow 24-48 hours for me to respond, then send a *polite* reminder. Always use your **UTEP email**. I am not legally allowed to discuss grades through non-UTEP accounts so always make sure to send and receive through that email. *

Office Location: Biology 202
Office Hours: Mondays 1:30-3:00pm or by appointment. Office hours will be held virtually or in person at my office. If you need an alternate time to meet, please email me with your availability so that we can set up a time that works for both of us.

**Course Description:**

This course is designed to provide you with a broad introduction to the field of Genetics. We will be tackling the information by investigating the molecular basis of genetics, patterns of inheritance, population-level dynamics, and contemporary methodologies and leading-edge advances in genetic research and technologies. Along the way, we will also discuss the diversity of ways in which genetic discoveries have been applied in other fields such as public health, evolutionary biology and ecology, sustainability, and others.

**Overall Course Goals:**

**By the end of the course, students should be able to:**

1. Identify and describe the processes wherein DNA serves, ultimately, as the template for the synthesis of proteins.
2. 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.
3. Understand the central theories/methods that define various Genetics subdisciplines.
4. Discuss and 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 and Materials:**

1. *Genetics: A Conceptual Approach (7$^{th}$ Ed.)*: Benjamin A. Pierce. W. H. Freeman, Publishers. ISBN: 978-1-319-29714-5.

**NOTE:** This textbook is **not required** for the course, and all assignments and exams will be structured around the lectures and activities provided in class. I do recommend the textbook as a great resource to review material before the exams.

2. *OpenStax* Textbook: This text is a free, online text covering introductory level information relevant to our course. Chapters 11-17 cover Genetics topics and this can be an additional resource, especially if you have not taken introductory biology in some time. I also recommend this text for different representations of the same material—don't get comfortable with one picture or diagram!

3. Blackboard: all other materials such as lectures, recordings, handouts, online resources, will appear through our Blackboard shell. Please also note that I will use the "Announcements" function on Blackboard to send out relevant information. You should receive an email when I post new announcements, but you can also visit that section of the course shell to quickly find the information as well.

**Grading Scale:**
89.95 – 100 = A ; 79.95 – 89.94 = B; 69.95 – 79.94 = C; 59.95 – 69.94 = D; Below 59.94 = F
**Note:** Students need to obtain a grade of C or better to pass this class.
The final day to withdraw from this class is **March 30th**. No requests for a withdrawal will be approved after that date. Students can always petition the Registrar for a complete withdrawal from the course pending documentation.

**Course Evaluation:**

Grading options- there are several categories for which you can earn points from the semester. There are a few options on how you might earn your final score for the semester:
OPTION 1: 40% online review exercises | 60% exam (this option can all be done from home)
OPTION 2: 20% online review exercises | 20% in-class participation | 60% exam
OPTION 3: 20% online review exercises | 20% in-class participation | 20% project | 40% exam

*** You do not need to tell me which option you are taking. I will calculate your total scores using each of the calculations and award you the highest value out of the three options. ***

**Online Review Exercises (OREs):**
For each of the four quarters of information for the course, there will be a set of practice problems to complete. These practice sets will be posted at the beginning of the section and due the week before the exam for that section—submit all work electronically through the blackboard submission portals. Grading will be based on effort; pay attention to what answers are being requested and answer *fully*. I will allow you to work in groups of up to 5 individuals. Credit will be by author attribution: whoever has participated on the exercise and *deserves* the credit for the work should be listed as an author on the assignment. If your group members do not participate, do not list them. I will grade the assignment holistically; in other words, you will lose points for *any* missing or incomplete answers. If a group member was assigned a question and did not complete it, the entire group will suffer the penalty. You may change groups as you would like. I am also glad to help you connect with others who maybe looking for partners to collaborate with.

**Exams:** This is not a course where you will only have a midterm and a final. The material is broken up in to chunks that correspond to the major sections of material for the course. Multiple tests help take the pressure off of you to cram information and give me an opportunity as an instructor to keep up with your progress as we move through the semester:

-There will be three tests during the semester and an optional final project.

-Your points for this point category will be calculated from your 3 highest scores for the semester. In other words, I will drop your lowest test score out of the three exams and final project.

-All tests will have multiple choice, matching, fill in the blank, and true/false question types.

-Information for the final project can be found below.

-All tests will be delivered **online through Blackboard.** You will have 50 minutes to take the exam.

-If you are satisfied with your exam scores, then you may choose to ignore the final project and calculate your final score from the average of your three test scores

**In-class Participation:**
For each quarter of the class we will do an in-class activity that you may participate in. These class sessions allow us to take a moment to reflect on the information we have seen and put it into practice through an activity. The dates where we will have these sessions are listed and fixed on the course calendar and attendance in class is required to earn points in this category. All of the materials and information you will need for these sessions will be provided in class on the day of the activities.

**Project:**
If you could use a bump to your test scores, you may choose to participate in the final project option. Points for this project would replace your lowest test score out of three and be equally weighted as the other two tests. This is an individual point category and may not be completed in a group. The basic structure of the project will be a research paper and study proposal for a genetics related project. If you are interested in genetics, this is a great way to explore the topic outside of the bounds of our course and to research the latest information in the field. If you are in a research lab that uses genetic technologies, I encourage you to use this as an opportunity to develop part of your research. Detailed information about the project will appear after the third exam; however, there will be time from the end of the third section until finals week to complete and submit the project.

**Deadlines, Late Work, and Absence Policy:**

No late work will be accepted.

Excused absences are for emergent medical reasons, funeral/personal loss, or university sponsored event. Documentation will be required and a makeup for the work will be determined by Dr. McCabe

**Copyright Statement for Course Materials:**
All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

**Technology Requirements:**
Course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

## Course Policies

**Inclusivity Statement**
In this course, each voice in the classroom has something of value to contribute. Please take care to respect the different experiences, beliefs, and values expressed by students and faculty involved in this course. In support of UTEP's commitment to diversity, this course welcomes individuals of all ages, backgrounds, citizenships, disabilities, sexes, education levels, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experiences, political affiliations, races, religions, sexual orientations, socioeconomic statuses, work experiences, or other visible or non-visible differences. I will not tolerate disrespectful language or behavior on the basis of any of the aforementioned statuses identities, or experiences.

**Chosen Name / Pronoun Statement**
I will gladly honor your request to address you by a chosen name or specific gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

***Academic Dishonesty***
It is the official policy of the University that all suspected cases or acts of alleged scholastic dishonesty must be referred to the Dean of Students for investigation and appropriate disposition. It is contrary to University policy for a faculty member to assign a disciplinary grade such as an "F" or zero to an assignment, test, examination, or other course work as a sanction for admitted or suspected scholastic dishonesty in lieu of normally charging the student through the Dean of Students. Similarly, students are prohibited from proposing and/or entering into an arrangement with a faculty member to receive a grade of "F" or any reduced grade in lieu of being charged with scholastic dishonesty. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

***Plagiarism***
"Plagiarism" means the appropriation of another person's ideas, processes, results, or words without giving appropriate credit. This includes intentionally, knowingly or carelessly, presenting the work of another as one's own; failing to credit sources used in a work product; attempting to receive credit for work performed by another; failing to cite the World Wide Web, databases and other electronic resources. Written work will be checked for plagiarism.

***Students with Disabilities Policy***
If you have or suspect a disability and need an accommodation you should contact Center for Accommodations and Support (CASS) at 747-5148 or at dss@utep.edu or go to Room 106 Union East Building. I will be contacting you individually to address your individual accommodations.

***Syllabus Change Policy***
This syllabus is a guide for the course and is subject to change with advanced notice.

| Wk | Date | Day | Important Dates | Topic |
|---|---|---|---|---|
| **1** | 16-Jan | M | NO CLASS- MLK Day | Syllabus and Course Policies; Introduction to Genetics |
| | 18-Jan | W | | **Section 1: Replication and Transcription** |
| **2** | 23-Jan | M | | -nucleic acid chemistry |
| | 25-Jan | W | | -chromosome structure |
| **3** | 30-Jan | M | **In-Class Participation 1** | -DNA replication and recombination |
| | 1-Feb | W | **ORE Section 1 DUE 3-Feb** | -transcription |
| **4** | 6-Feb | M | | PIERCE CHAPTERS: 10, 12, 13 |
| | 8-Feb | W | **Section 1 Exam** | **Section 2: Translation and Expression** |
| **5** | 13-Feb | M | | -RNA and RNA processing |
| | 15-Feb | W | | -gene expression |
| **6** | 20-Feb | M | | -regulatory processes |
| | 22-Feb | W | | -mutation and repair |
| **7** | 27-Feb | M | **In-Class Participation 2** | PIERCE CHAPTERS: 14, 15, 17, 18 |
| | 1-Mar | W | **ORE Section 2 DUE 3-Mar** | |
| **8** | 6-Mar | M | | |
| | 8-Mar | W | **Section 2 Exam** | |
| **9** | 13-Mar | M | SPRING BREAK | |
| | 15-Mar | W | SPRING BREAK | |
| **10** | 20-Mar | M | | **Section 3: Heredity and Sexual Reproduction** |
| | 22-Mar | W | | -principles of heredity; Mendelian and non-Mendelian genetics |
| **11** | 27-Mar | M | | -sex-linked characteristics |
| | 29-Mar | W | | -pedigree analysis and applications |
| **12** | 3-Apr | M | **In-Class Participation 3** | PIERCE CHAPTERS: 2, 3, 4, 5, 6 |
| | 5-Apr | W | **ORE Section 3 DUE 7-Apr** | |
| **13** | 10-Apr | M | | |
| | 12-Apr | W | **Section 3 Exam** | |
| **14** | 17-Apr | M | | **Section 4: Population Genetics and Genetic Research** |
| | 19-Apr | W | | -quantitative and population genetics |
| **15** | 24-Apr | M | | -evolutionary genetics |
| | 26-Apr | W | | -genetic biotechnology and the age of -omics technologies |
| **16** | 1-May | M | **In-Class Participation 4** | -epigenetics |
| | 3-May | W | **ORE Section 4 DUE 5-May** | PIERCE CHAPTERS: 19, 20, 21, 24, 25, 26 |
| **FN** | | | **FINAL** | **No Final Exam: Final Project Due before midnight Wednesday, May 10, 2023** |