Lecture Syllabus

**BIOL 3451.02: Genetics**

**Fall 2025**

**Lecture: T, Th 9:30—10:50 am,**

**All Classes meet in LIF A117**

**Instructor:** Dr. Jessica Moore

**Office is located within the Biology Advising area, LIF A 128**

**Office hours will be announced weekly on Canvas. You may also email for an appointment at another time**

**Email****:** My email: jessica.moore3@unt.edu

I prefer that you email me through Canvas so I know what class you are in. Unless you have an attachment. Monday-Friday expect an answer relatively quickly. I reserve the right to not respond to email on the weekends unless it is an emergency situation.

### Course Description

Genetics is the study of heredity between cells and generations. We will study the fundamental biological processes behind heredity, and the patterns of inheritance that result from these processes.  We will take a historical approach, first exploring the concepts of classical genetics. We will then move on to the discovery of DNA and the molecular biology of genes and gene expression

Discoveries made by modern geneticists contribute to our basic understanding of inheritance and evolution as well as provide advancements in disease diagnostics and treatment, biotechnology, and agriculture. We will use examples from these different disciplines to learn about genetics in a real-life context. Mastering the material presented in this course will aid students planning careers in medicine, research, or biotechnology as well as contribute to making them informed citizens in our technologically advanced society.

After completing this course, students will have a deeper understanding of the classical and modern theories of inheritance They will be familiar with many methodologies used to study genetics In addition to being able to define a variety of terms related to genetics students will be able to apply and synthesize concepts learned throughout the semester.

**Course Objectives**

Upon successful completion of this course, you should be able to

1. describe and draw the processes of mitosis and meiosis
2. know all the parts of a chromosome
3. predict the offspring from monohybrid, dihybrid and sex-linked traits
4. analyze a pedigree for genetic patterns
5. calculate gene relationships based on linkage data
6. describe the structure and properties of DNA
7. Understand the processes and importance of the central dogma of molecular biology
8. diagram the processes of DNA replication in prokaryotes and eukaryotes
9. explain the role of DNA replication in important biotechniques such as DNA sequencing & PCR

**Prerequisites:** Intro Bio I and II with a grade of C or better. At least 1 lecture /lab at the 2000 level and Organic Chem I completed.

**Required** **Textbook**: Genetics, A Conceptual Approach, 7th edition, by Benjamin A Pierce.

This book is available for purchase or rental at the UNT bookstore and can also be bought or rented from various local and on-line retailers. Readings from the textbook will be announced and will follow the topic order in the course schedule. To get the most out of the lecture, it is important that you complete the assigned readings before coming to class since lectures will build on the reading assignment.

**Rules of in-class etiquette:**

* *Try to be on time (early) to class and* ***avoid leaving the classroom during class*** *unless it is absolutely necessary.*  It is very distracting to me and your classmates if you are walking around and coming in and out of the classroom. If you have a medical condition or know that you are going to have to leave the room, please sit near the door to minimize the disturbance to the rest of the class.
* *Be respectful to your professor and classmates.* This includes *attending class regularly* and being *engaged and attentive*.

**Please do not have whispered conversations during lecture!**

* *If you communicate via email, please be respectful and use proper English*. A little courtesy goes a long way! *Note:* you should always address female professors as Doctor or Professor. It is disrespectful and incorrect to address them as “Miss or Mrs”.
* *Please read about* [*effective online communication*](file:///C%3A%5CUsers%5Cjessi%5CDropbox%5CUNT%20Fall%202020%20Cell%20Bio%5C-%09https%3A%5Cclear.unt.edu%5Conline-communication-tips):

**Attendance:** While attendance is highly recommended, there will not be credit for attendance this semester. All exams will be on paper and given in the classroom at our regular class time.

**Academic Dishonesty Policy**

Students caught cheating on any exam will receive a "0" for that particular exam and will not be able to drop that grade. Additionally, the incident will be reported to the Dean of Students, who may impose further penalty. According to the UNT catalog, the term "cheating" includes, but is not limited to: a. use of any unauthorized assistance in taking quizzes, tests, or examinations; b. dependence upon the aid of sources beyond those authorized by the instructor; c. the acquisition, without permission, of tests or other academic material belonging to a faculty or staff member of the university; d. any other act designed to give a student an unfair advantage.

[UNT Policy on Academic Integrity](https://policy.unt.edu/sites/default/files/06.003.AcadIntegrity.Final_.pdf)

*Note: Cheating on online exams will not be tolerated. Any violations of Academic Integrity will be reported for all individuals involved.*

**If we need to change to Remote Format:**

Remote instruction may be necessary if community health conditions change. Students will need access to a computer with a camera that will allow you to use Zoom and the Lockdown Browser for Exams. Information on how to be successful in a remote learning environment can be found at <https://online.unt.edu/learn>

**Canvas:** I will utilize our course page on Canvas for much of our course information. You will also do online assignments and exam through Canvas. Make sure you can access this site as soon as possible and alert me to any difficulties immediately. **Please note: Safari browser should not be used for any Homework on Canvas**: Figures and other components do not show up with this browser. The recommended browser for Canvas is Google Chrome.

You will find a copy of this syllabus and other course materials (including online assignments, answer keys, supplementary materials, videos, and my lecture slides\*) on Canvas. I will also do my best to keep the Canvas gradebook up to date and accurate. Please notify me of any possible errors of graded assignments on Canvas as soon as possible and be prepared to bring the actual assignment to me as proof of the grade record error.

**Lecture Notes:** Most lectures will be posted as **in both powerpoint and pdf format** on Canvas at least one day before the class meeting. Lecture notes do NOT contain the full information provided in class and it is your job to obtain this extra information—preferably by being present during lecture!

**I Highly recommend** that you have access to the slides during lecture so you can write on them! Refer to the “How to print lecture notes” document for tips on printing multiple slides per page as a pdf. \*I will make every attempt possible to post my lecture slides on Canvas before the corresponding lectures so that they may be printed before class. This is a courtesy, not an obligation, and I reserve the right to change slides after posting them and revoke this luxury altogether.

**Online homework assignments** will be posted on Canvas in the form of “Quizzes”. You may use course materials when taking the quizzes, this includes your textbook, lecture notes and your handwritten notes. ***You are not allowed to ‘google’ use AI or otherwise search the web for answers***. **You should not ask other students for the answers.** These assignments are intended to help YOU learn the material. Send me an email if you are locked out or have other computer difficulties that prevent you from completing the assignments on time.

If your computer is having issues or your wifi is a problem**, remember that there are computers in the library and elsewhere on campus that you can use**. **You can also check out a laptop from the library for an entire semester to do your coursework.** **You will have several days to complete these assignments-do not wait until the last 10 minutes to do them!** There will be no excused ‘make-ups’ of the online assignment except for people with a medical or other university-accepted excuse for the *entire* time that the assignment was available.

***Note:* Graded homework will not be accepted after the Answer Keys have been posted or given out in class**!

All Online Homework will be due at 11:59pm on Monday.

**Non-graded problems--**Recommended end-of-chapter problems will beassigned throughout the semester. ***You will not be handing these in for credit***, but you will be expected to do them. Do not ignore these or just read the solutions!

***TIP:* Homework problems, graded or non-graded, often appear on exams, sometimes with only minor changes!**

**Exams:** There will be five exams during the semester **= Exams 1-4,** and a fifth exam on Final Exam day = **Final Exam**. The lowest score you earn on **these Five Exams** will be dropped. I recommend that you take ALL exams, so you at least have the chance to practice answering questions on the material, even if you plan to drop that exam. There will no make-up exams since you can drop an exam, unless you fit the following criteria:

**Make-Up Policy**: Make-up exams will only be given in for medical situations where you may be contagious and other ***extreme circumstances*** that involve serious illness (hospitalization), death in your immediate family, or incarceration. You must contact me within **24 hours** of the missed exam with the **appropriate official documentation** to request a make-up exam. I retain the right to give a make-up exam that is different in exact content and/or style than the missed coursework (i.e. an oral or written exam)!

**Please do not ask for a different date/time for the Final Exam!** The only reason to grant a request for an alternate time for the final exam is a medical emergency, death or incarceration. Please plan your end of semester to ensure that you will be on campus for our scheduled **Final Exam time!**

**EXAMS ARE SCHEDULED FOR THE FOLLOWING DATES**

**WHAT**: **WHEN:** **TIME**

**Exam 1:** Tuesday, September 9 9:30—10:50 am

**Exam 2:** Tuesday, October 7 9:30—10:50 am

**Exam 3:** Thursday, October 30 9:30—10:50 am

**Exam 4**: Tuesday, December 2 9:30—10:50 am

**Final Exam: Thursday, December 11 8:00—10:00 am**

**All Exams will be on paper and held in our classroom.**

**Grades**

|  | **Points Possible** | **Percentage of Final Grade** |
| --- | --- | --- |
| **Your** **4 highest score exams** | 400 points | 80% |
| **Graded Homework** | 100 points | 20% |
| **Total Points Possible** | 500 points | 100% |

**There will be some extra credit points earned throughout the semester. These will be in addition to your 500 points**

**Final Grades** will be assigned based on the percentage from the total points you earn in the class divided by 500. *There will be no curving of grades, so do not ask!*

A = 448-500

B = 398-447

C = 348-397

D = 298-347

F = less than 298

**To calculate your grade: add up your points earned and divide by the points possible.**

**ODA**

Please email or attend office hours at the beginning of the semester to discuss what arrangements are needed to maximize your success in this course! A modification of course attendance policy agreement must be completed no later than the second week of classes for those students who have certain accommodations.

**Statement from the ODA:**

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to me to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time; however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. For additional information see the Office of Disability Accommodation website at http://www.unt.edu/oda. You may also contact them by phone at (940) 565-4323

**Study Tips:** **Genetics is a problem-based course**. You **MUST** do problems to succeed in this class. Problems will be assigned from most of the chapters covered in lecture. It may also be beneficial for you to solve unassigned problems. A slightly modified version of at least one assigned problem will appear on each exam. The solutions to odd-numbered questions appear in the back of your textbook. As with most college courses, it is expected that **for every hour we spend in lecture**, **students will spend 2-3 hours outside of class** preparing, studying, and completing assignments.

**How to succeed in Genetics:**

1. Do the assigned reading before coming to lecture. You don’t have to master every concept but having some familiarity with the material will make the lecture easier for you to comprehend.
2. Attend Live Lectures! **Have the lecture notes** available to you so you can write on them during lecture. While lecture recordings will be available, you will get more out of the lecture if you are there and participating.
3. After lecture, read the book again with your lecture notes in front of you. You should now be able to understand all the details of the reading assignment. Make a list of anything you don’t understand in the lecture notes and the reading.
4. Work all the assigned problems from that lecture. Do extra problems if needed to help you master a topic. You should REDO problems that you didn’t understand how to do the first time!
5. **GET HELP** well in advance of an exam. Come to my office hours with questions. Discuss your questions with others in the class.

**Tutoring:** There is help for this and other Biology classes in the Learning Center in SAGE 170, https://learningcenter.unt.edu/. The tutor can assist with assignments from lecture or lab and offer suggestions on how to effectively study the material for the course.

**DON’T WAIT UNTIL JUST BEFORE AN EXAM TO WORK THE ASSIGNED GENETICS PROBLEMS!**

**Genetics Course Schedule—Fall 2025**

This is a tentative topic list of topics for the semester. The Instructor reserves the right to change the schedule as needed. Exam weeks will not be changed.

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Lectures** | **Textbook**  |
| 1 | Tues., August 19 | 01 Syllabus & Intro to Genetics | Chapter 1 |
| Thurs., August 21 | 02 Chromosome Structure & Cell Division | Chapter 2,  |
| 2 | Tues., August 26 | 03 Meiosis  | Chapter 2 |
| Thurs., August 28 | 04 Gametogenesis | Chapter 2 |
| 3 | Tues., September 2 | 05 Mendelian Genetics I | Chapter 3 |
| Thurs., September 4 | 06 Mendelian Genetics II | Chapter 3 |
| 4 | **Tues., September 9** | **Exam 1 (Lect. 01-06)** |  |
| Thurs., September 11 | 07 Mendelian Genetics III-probability methods | Chapter 3 |
| 5 | Tues., September 16 | 08 Sex-Linkage I | Chapter 4 |
| Thurs., September 18 | 09 Sex-Linkage II | Chapter 4  |
| 6 | Tues., September 23 | 10 Pedigrees I | Chapter 6 |
| Thurs., September 25 | 11 Pedigrees II | Chapter 6 |
| 7 | Tues., September 30 | 12 Linkage I | Chapter 7 |
| Thurs., October 2 | 13 Linkage II | Chapter 7 |
| 8 | **Tues., October 7** | **Exam 2 (Lect. 07-13)** |  |
| Thurs., October 9 | 14 Linkage III- | Chapter 7 |
| 9 | Tues., October 14 | 15 Extensions of Mendelian Inheritance I | Chapter 5 |
| Thurs., October 16 | 16 Extensions of Mendelian Inheritance I | Chapter 5 |
| 10 | Tues., October 21 | 17 Chromosome Variations I | Chapter 8 |
| Thurs., October 23 | 18 Chromosome Variations II | Chapter 8 |
| 11 | Tues., October 28 | 19 Discovery & Structure of DNA | Chapter 10 |
| **Thurs., October 30** | **Exam 3 (Lect. 14-19**I |  |
| 12 | Tues., November 4 | 20 Discovery & Structure of DNA II | Chapter 10 |
| Thurs., November 6 | 21 Chromosome Structure | Chapter 11 |
| 13 | Tues., November 11 | 22 DNA replication I | Chapter 12 |
| Thurs., November 13 | 23 DNA replication II | Chapter 12 |
| 14 | Tues November 18 | 24 In vitro Replication Techniques | Chapter 19 |
| Thurs November 20 | 25 Introduction to Genomics and SNPs | Chapter 20 |
| 15 | Tues., November 25 | *Thanksgiving Week, no classes* |
| Thurs., November 27 |
| 16 | **Tues., December 2** | **Exam 4 (Lect. 20-25)** |  |
| Thurs., December 4 | 26 Review for the Final Exam  |  |
|  | **Thurs, December 11** | **FINAL EXAM: 8:00-10:00am in our Usual Classroom** |