

	Course	BIOL 3401.001/201 Genetics
	Instructors	Xintong Dong, PhD Elizabeth Pickett, PhD
	Term	Fall 2024
	Meetings	001: Tues & Thurs, 1-2:15pm, in SLC 1.102 201: Tues, 7-7:50pm, in SLC 1.102

Instructors Contact Information

Instructor	Xintong Dong, PhD	Elizabeth Pickett, PhD
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Office Location	BSB 12.429	SLC 2.402
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Office Hours	Fridays 9-10am Via Teams by appointment	Drop-in Mondays 10am-noon (in office or via Teams) or by appointment

General Course Information

Pre-requisites	BIOL 2311 BIOL 2281 or CHEM 2401 or equivalent CHEM 2323 or equivalent
Co-requisite	BIOL 3401.201 Genetics workshop
Course Description	The phenomenon of heredity, its cytological and molecular basis; gene expression and transfer of genetic information, with a major focus on bacterial and model eukaryotic systems; genetic recombination and chromosome mapping; tetrad analysis; mutations and their role in understanding function; genetic interactions; application of recombinant DNA techniques to genetic analysis. Landmark experiments and their analysis. Problem solving and discussion related to concepts covered in lectures.
Learning Outcomes	By completion of the course students should understand: <ol style="list-style-type: none"> 1. Principles and patterns of inheritance 2. Structures and functions of chromosomes 3. Molecular basis of DNA replication, transcription and translation 4. Mechanisms of gene expression in prokaryotes and eukaryotes 5. Modern genome technologies including whole genome and whole transcriptome sequencing
Textbook & Materials	<i>Genetics: Analysis & Principles</i> by Brooker, 8e with Connect Access

Grading Policies

Item	Qty	Points	Points possible	% Final grade
Attendance and participation	1	150	150	15%
Textbook reading quizzes (4 dropped)	24	5	100	10%
Homework assignments	15	10	150	15%
Exam	3	200	600	60%
TOTAL POINTS POSSIBLE			1000	

Grading scale

Grade	% cut off		Grade	% cut off
A+	94		C	70
A	90		C-	67
A-	87		D+	64
B+	84		D	60
B	80		D-	57
B-	77		F	54 and below
C+	74			

Course Policies

Expectations	Students are expected to engage with the lectures, participate in the workshops, complete the assigned readings, and seek assistance for any concepts with which they are struggling.
Classroom Conduct Requirements Related to Public Health Measures	UT Dallas will follow the public health and safety guidelines put forth by the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services (DSHS), and local public health agencies that are in effect at that time during the Fall 2024 semester.
Additional Class Materials	The instructor will provide supplemental class materials, such as lecture slides, through eLearning. These materials may be downloaded during the course but are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct .
Class Attendance and Participation	Attendance is expected and failure to attend will negatively impact your attendance and participation score (15% of final grade). You will have the opportunity to earn points based on your attendance and participation in the lecture. You will not be able to earn points if you fail to bring your personal electronic device to lecture. Additionally, you will not earn points if you fail to properly utilize your device during lecture (i.e., turning it on, logging in to eLearning, responding to posted questions, etc.). Submitting answers while not

	<p>physically present at the lecture is considered academic dishonesty and such cases will be referred to the Office of Community Standards and Conduct.</p> <p>Each question presented in lecture is worth 2 points: 1 point for responding and 1 point having the correct answer. Students who earn between 70%-100%, 60-69%, 50-59%, or 0-49% of the total possible points will receive 150, 120, 90, or 0 points respectively. Points will be earned during lectures #2-26. Practice questions designed to accustom you to using your personal electronic device will be presented during lecture #1 but will not contribute to your score. See Lecture/Attendance Points FAQ in eLearning for more details.</p>
Class Recordings	<p>Recording of lectures is prohibited. Special accommodations can be considered if a request is made through the Office of Student AccessAbility. Recordings must not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.</p>
Readings	<p>Chapter readings from the textbook are assigned to be completed before the associated lecture. Reading quizzes for each chapter are due at 11:59pm CT the day before class. The lowest 4 reading quiz scores will be dropped. All reading quizzes together account for 10% of the final grade.</p>
Homework Assignments	<p>Homework assignments will be posted on Connect. This is why Connect access is necessary when you purchase the textbook.</p> <p>Assignments will become available on Monday at midnight and are due by the following Sunday at 11:59pm CT. The last assignment for week 15 will be due on December 5th at 11:59pm CT.</p> <p>All homework assignments together account for 15% of the final grade.</p>
Exams	<p>EXAMS:</p> <ul style="list-style-type: none"> • Three (3) exams will be given during the semester. • Exam dates and times are shown in the calendar at the end of the syllabus. • No exams will be dropped. <p>Exam Format:</p> <ul style="list-style-type: none"> • Exams will be taken at the Testing Center per the schedule in this syllabus. • Exams will be online, administered in eLearning from the Testing Center. • You will have 75 minutes to complete the exam. Average time to complete it should be 60 minutes. • The structure of all exams will be mix of question styles divided as follows: <ul style="list-style-type: none"> • 80% multiple choice, true/false, matching questions • 20% fill-in the blank, short answer • Everything in the textbook is fair game for lecture exams, regardless of whether or not it is presented in class. You are responsible for using the information contained in the textbook to prepare for exams. • Do not miss exams! If exams are missed, you must be able to verify your reason for missing. • Providing a make-up exam is at the discretion of the instructor. In extreme circumstances make-up exams will be permitted. Legitimate Reasons to make-up missed exams are as follows: UTD team activity (with letter from organization sponsor), death of an immediate family member, and bona fide medical emergencies (with proof of medical records). Any reason must

	<p>be presented in writing prior to the exam start as soon as is reasonably possible.</p> <ul style="list-style-type: none"> The following penalty will be applied to any student that misses an exam at the testing center and notifies the instructor after the exam start time: A student will only be able to score a maximum of 75% (150 out of 200) on any makeup exam. <p>Testing Center Instructions:</p> <ul style="list-style-type: none"> The UTD Testing Center is located at 3020 Waterview Parkway, SP2 First Floor, Suite 11.175, Richardson, TX, 75080. UTD Testing Center hours and guidelines are found at https://ets.utdallas.edu/testing-center/students Students MUST reserve their seat for testing at least 48 hours prior to the exam date. Students MUST present their PHYSICAL student ID Comet Card each time to be admitted to the exam. If you do not have a UTD photo ID, plan to get one before the first exam. No other form of identification is acceptable. A driver's license will not work as that does not have your student ID. Student must have the following information: <ul style="list-style-type: none"> Course Prefix + Course Number + Course Section Number + Exam Name Instructor's Name No outside materials permitted. If the student violates this policy, an incident report will be filed and submitted to the instructor. Students are monitored while testing. The testing environment and its computers are electronically monitored and recorded to include real-time video and screen captures. Any accommodation required by the ARC will be honored at the Testing Center.
Late Work	Late work will only be accepted if due to extenuating circumstances as judged by the instructor.
Comet Creed	<i>This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same: "As a Comet, I pledge honesty, integrity, and service in all that I do."</i>
Academic Support Resources	The information contained in the following link lists the University's academic support resources for all students. Please see http://go.utdallas.edu/academic-support-resources .
UT Dallas Syllabus Policies and Procedures	The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

Academic Calendar – Fall 2024

Week	Date	#	Topic	Reading
1	8/20	1	Overview of genetics	Chapter 1
	8/22	2	Mendelian inheritance I	Chapter 2
2	8/27	3	Mendelian inheritance II	Chapter 2
	8/29	4	Chromosome transmission during cell division and sexual reproduction	Chapter 3
3	9/3	5	Extensions of Mendelian inheritance	Chapter 4
	9/5	6	Non-mendelian inheritance	Chapter 5
4	9/10	7	Genetic linkage and mapping in eukaryotes I	Chapter 6
	9/12	8	Genetic linkage and mapping in eukaryotes II	Chapter 6
5	9/17	9	Genetic transfer and mapping in bacteria	Chapter 7
	9/19-20		EXAM 1 (lectures 1-8 and associated readings)	
6	9/24	10	Variation in chromosome structure and number	Chapter 8
	9/26	11	Medical genetics	Chapter 24
7	10/1	12	Molecular structure of DNA and RNA	Chapter 9
	10/3	13	Molecular structure of chromosome and transposable elements	Chapter 10
8	10/8	14	DNA replication	Chapter 11
	10/10	15	Gene mutation, DNA repair and homologous recombination	Chapter 19
9	10/15	16	Transcription of bacteria	Chapter 12, 14
	10/17	17	Transcription in eukaryotes	Chapter 12
10	10/22	18	Translation in bacteria	Chapter 13, 14
	10/24	19	Translation in eukaryotes	Chapter 13
11	10/29	20	Gene regulation in eukaryotes I	Chapter 15
	10/31-11/1		EXAM 2 (lectures 8-19 and associated readings)	
12	11/5	21	Gene regulation in eukaryotes II - epigenetics	Chapter 16
	11/7	22	Non-coding RNAs	Chapter 17
13	11/12	23	Genetics of viruses	Chapter 18
	11/14	24	Molecular biology technologies	Chapter 20
14	11/19	25	Genomic technologies	Chapter 22
	11/21	26	Population genetics	Chapter 27
FALL BREAK				
15	12/3	27	Evolutionary genetics	Chapter 29
	12/5		Review*	
	12/9-10		EXAM 3 (lectures 20-27 and associated readings)*	
*This session may be used for lecture 27 if schedule shifts due to inclement weather, instructor illness, etc.				

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the instructor.