UTD	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	
Office Phone	972-883-6502	972-883-2646	
Office Location	BSB 12.429	SLC 2.402	
Email Address	xintong.dong@utdallas.edu	beth.pickett@utdallas.edu	
Office Hours	Fridays 9-10am	Drop-in Mondays 10am-noon (in office	
	Via Teams by appointment	or via Teams) or by appointment	

# **General Course Information**

	BIOL 2311			
Pre-requisites	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	<ul> <li>By completion of the course students should understand:</li> <li>1. Principles and patterns of inheritance</li> <li>2. Structures and functions of chromosomes</li> <li>3. Molecular basis of DNA replication, transcription and translation</li> <li>4. Mechanisms of gene expression in prokaryotes and eukaryotes</li> <li>5. Modern genome technologies including whole genome and whole transcriptome sequencing</li> </ul>			
Textbook & Materials	Genetics: Analysis & Principles 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	С	70
A	90	C-	67
A-	87	D+	64
B+	84	D	60
В	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 <u>Student Code of Conduct</u> .
Class	Attendance is expected and failure to attend will negatively impact your attendance and participation score (15% of final grade).
Attendance and Participation	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

	physically present at the lecture is considered academic dishonesty and such cases will be referred to the Office of Community Standards and Conduct.			
	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.			
Class Recordings	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 <u>Student Code of Conduct.</u>			
Readings	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.			
Homework Assignments	<ul> <li>Homework assignments will be posted on Connect. This is why Connect access is necessary when you purchase the textbook.</li> <li>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 5<sup>th</sup> at 11:59pm CT.</li> <li>All homework assignments together account for 15% of the final grade.</li> </ul>			
Exams	<ul> <li>EXAMS:</li> <li>Three (3) exams will be given during the semester.</li> <li>Exam dates and times are shown in the calendar at the end of the syllabus.</li> <li>No exams will be dropped.</li> <li>Exam Format:</li> <li>All 3 exams will be paper-based.</li> <li>You will have 75 minutes to complete the exam. Average time to complete it should be 60 minutes.</li> <li>The structure of all exams will be mix of question styles divided as follows: <ul> <li>80% multiple choice, true/false, matching questions</li> <li>20% fill-in the blank, short answer</li> </ul> </li> <li>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.</li> <li>Do not miss exams! If exams are missed, you must be able to verify your reason for missing.</li> <li>Providing a make-up exam swill 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</li> </ul>			

	<ul> <li>be presented in writing prior to the exam start as soon as is reasonably possible.</li> <li>The following penalty will be applied to any student that misses an exam 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.</li> </ul>
Late Work	Late work will only be accepted if due to extenuating circumstances as judged by the instructor.
Comet Creed	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."
Academic Support Resources	The information contained in the following link lists the University's academic support resources for all students. Please see <u>http://go.utdallas.edu/academic-support-resources</u> .
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 <u>http://go.utdallas.edu/syllabus-policies</u> for these policies.

#### Academic Calendar – Fall 2024

Week	Date	#	Торіс	Reading	
1	8/20	1	Overview of genetics	Chapter 1	
	8/22	2	Chromosome transmission during cell division and sexual reproduction	Chapter 2	
2	8/27	3	Mendelian inheritance I	Chapter 3	
	8/29	4	Mendelian inheritance II	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 in TI auditorium		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	11 10/29 20		Gene regulation in eukaryotes I	Chapter 15	
	10/31 i audito	n Tl rium	EXAM 2 (lectures 9-19 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 in TI auditorium		EXAM 3 (lectures 20-27 and associated readings)		

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