Introductory Biology Laboratory
BIOLOGY 2281
Fall 2025

Lecture: 001: FRIDAY: 8:00 AM-8:50 AM at SLC 1.102
002: FRIDAY: 9:00 AM-9:50 AM at SLC 1.102

Lab: See Table below:

Day of the Week	Section #	Time	Location	Instructor
Monday	301	10:00 AM –12:45 PM	**SLC 2. 206**	**Dr. Salamat**
Monday	302	10:00 AM –12:45 PM	SLC 2.215	**Dr. Mehta**
Monday	303	1:00 PM – 3:45 PM	**SLC 2.206**	**Dr. Salamat**
Monday	304	1:00 PM – 3:45 PM	SLC 2.215	**Dr. Mishra**
Monday	305	4:00 PM – 6:45 PM	SLC 2.215	**Dr Esparza**
Tuesday	306	9:00 AM –11:45 AM	**SLC 2.206**	**Dr. Mehta/Mishra**
Tuesday	307	10:00 AM –12:45 PM	SLC 2.215	**Dr. Davenport**
Tuesday	308	12:00 PM – 2:45 PM	**SLC 2.206**	**Dr. Salamat**
Tuesday	309	3:00 PM – 5:45 PM	SLC 2.206	**Dr. Mishra**
Wednesday	310	9:00 AM –11:45 AM	SLC 2.215	**Dr. Esparza**
Wednesday	311	9:00 AM –11:45 AM	**SLC 2.206**	**Dr. Mishra**
Wednesday	312	12:00 PM – 2:45 PM	SLC 2.215	**Dr. Esparza**
Wednesday	313	3:00 PM – 5:45 PM	**SLC 2.206**	**Dr. Salamat**
Wednesday	801	6:00 PM – 8:45 PM	**SLC 2.206**	**Dr. Salamat**
Thursday	314	10:00 AM –12:45 PM	SLC 2.215	**Dr. Davenport**

Instructor Contact Information

- Dr. Iti Mehta iti.mehta@utdallas.edu
- Dr. Anne Davenport anne.davenport@utdallas.edu
- Dr. Narges Salamat narges.salamat@utdallas.edu
- Dr Ritu Mishra ritu.mishra@utdallas.edu
- Dr Matthew Esparza matthew.esparza@utdallas.edu

Instructor Office hours and locations: (announced in each eLearning lab section)
Dr. Davenport Office: FN 3.120H Office hours: Mondays and Fridays 10:30-11:30 am or by appointment

- The FIRST IN-PERSON FRIDAY MEETINGS START ON Sept 5 IN SLC 1.102 (section 001 and 002).
- THE FIRST LAB STARTS ON Sept 8-11 IN SLC 2.215 or SLC 2.206 (assigned according to student's enrolled lab section).

Your Section's Teaching Assistants

Name	Email Address

COURSE MODALITY

Instructional Mode	BIOL2281 Lab sections (301-801) and Lecture sections (001/002) are offered in Traditional classroom/laboratory in-person instruction. See the description: https://registrar.utdallas.edu/registration/
Course Platform	Course content can be accessed using your UT Dallas NetID account on the eLearning website. Please see the course access and navigation section of the Getting Started with eLearning and the Student eLearning Tutorials webpage for more information.
Expectations	See COURSE EVALUATION and COURSE CALENDAR below

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 2025 semester.

COURSE PRE-REQUISITES: BIOL 2311

COURSE DESCRIPTION

The primary goal of this semester-long course is to provide you with opportunities to learn bioinformatics and various laboratory skills and techniques used in molecular biology. Lectures discuss the theoretical aspects of the experiments carried out in the laboratory. Each laboratory experience builds or interconnects with the others and seeks a balance between biological content and conceptual understanding. The curriculum is tailored to the mission and strengths of the Department of Biological Sciences at the University of Texas at Dallas.

STUDENT LEARNING OBJECTIVES/OUTCOMES

Objectives: The goal of this course is to give students opportunities for hands-on learning of biological principles. This course teaches students the basic concepts of bioinformatics; the microbiological concepts and techniques such as microscopy and aseptic handling of microorganisms; bacterial transformation; eukaryotic cell divisions; biochemical concepts and techniques such as properties and identification of macromolecules, determination of the rate of an enzyme-catalyzed reaction and protein gel electrophoresis; DNA-centered molecular biology principles and techniques including polymerase chain reaction, restriction digestion, plasmid mapping and DNA agarose gel electrophoresis. Each laboratory experience builds or interconnects with the others and seeks a balance between biological content and conceptual understanding.

Outcomes: Students will therefore:

1. Be able to define, explain, and give examples of the basic concepts in bioinformatics, structure and properties of biologically important macromolecules, enzyme kinetics, eukaryotic cell divisions and bacterial transformation, and polymerase chain reaction.
2. Be able to perform basic molecular biology techniques in DNA manipulation.
3. Be able to use common biological laboratory skills, techniques, and instrumentations.
4. Learn how to properly present and process data, interpret data analytically and draw appropriate conclusions.

COURSE MATERIAL

- Biology 2281 Lab Manual, 2025 by Drs. Anne Davenport, Matthew Esparza, Iti Mehta, Ritu Mishra, and Narges Salamat:
  Files of lab procedures and lecture slides will be available at http://elearning.utdallas.edu starting Aug 25th, no purchase required. Several topics include graph paper and report pages that need to be printed **single-sided** for accurate grading. A laptop is **required** for each lab exercise. Students need to install Microsoft Word and Excel on their laptops to process data and complete lab reports before the end of lab sessions. Instructions on how to install Office (on up to 5 personally-owned PCs or Macs) are posted in this link: https://oit.utdallas.edu/o365/. If you need help with Office 365, contact the OIT Help Desk.
  If you do not own a laptop, The library has laptops that can be checked out for up to 3 days at a time. https://library.utdallas.edu/about-the-library/library-policies/userguide/

  An electronic device with internet connection/capability is required to access eLearning during lecture sections. Participation/Attendance Points obtained during lectures will be posted in My Grades of section 001 and 002 weekly. Failure to bring a device, sign-in to the correct session in eLearning, or attend your enrolled section will result in zero points earned for that lecture.

- Suggested reference book:
  Textbook for BIOL2311

COURSE EVALUATION/GRADING SCHEMES

Students may earn a maximum of **550** points. The following table lists the details of assessment items and the point distributions.

Assessment Activity	Points	Your points
Mid-term Exam (including lab practicals)	110	
Final Exam (including lab practicals)	124	
10 out of 11 Post-Lab Reports (@ 20 pts each)	200	
11 Pre-lab (@ 6 pts each)	66	
Syllabus and Safety Pre-lab	10	
Course Participation/Attendance Points	40	
Total	**550**	

The final course grades will be assigned based upon the standard grading scale below.

Points Earned	Letter Grade	Point Earned	Letter Grade	Point Earned	Letter Grade
535	A+	460	B	385	C-
510	A	440	B-	365	D+
495	A-	420	C+	350	D
475	B+	400	C	330	D-

- **Post-Lab Reports:** The format of lab reports will vary from week to week depending upon the experiment that was performed. Although some lab exercises will be done in groups of two or more students, each student must turn in their own typed report for grading. Your report should reflect your independent processing and presentation of data and answering related questions posted for the current semester. Do not copy material from other students. Do not allow any other student to see or copy your work. Any incidence of suspected scholastic dishonesty will be reported to OCSC. Your work will be graded based on neatness, accuracy, and completeness. **If you are not physically present during a particular lab, you are not entitled to turn in a post-lab report for credit**. Your lowest

report score (excluding **report E11)** will be dropped from the course grade calculation.

- **Exams:** Midterm and final exams will be given during your scheduled lab period. Each exam will be composed of two parts: a lab practical part and a written test. The lab practical portion will carry approximately 1/3 of the total exam grade and will focus on important laboratory techniques and data analysis. The format of the written test will be primarily short answers and may include diagrams and illustrations. They are designed to evaluate your understanding of the basic biological concepts and laboratory methodologies. **You are responsible for studying the contents of any lab sessions that you do not attend.** Accommodation letter provided by The Accessibility Resource Center is required to request extended exam period and/or provide alternate testing environment.

- **Pre-Lab Assignments:** Lab exercises will have pre-lab assignments to make sure that you are prepared for the experiment before you come to the lab. Pre-labs are INDEPENDENT work. Do not copy material from other students. Do not allow other students to copy your work. Pre-lab assignments must be completed in eLearning BEFORE the start of your regularly scheduled lab section. Late pre-labs will not be accepted.

- **eLEARNING**: All course related lecture notes and other materials (including announcements, pre-labs, photos of the lab results, review questions, and grades) will be promptly posted on eLEARNING. Please check it regularly. Contact your instructor with concerns regarding grades as soon as possible. Scores for E1-E5 will be finalized on Oct 16th, scores for E6-E11 will be finalized on Nov 28th.

COURSE POLICIES

- Attendance and Class Participation:

  Attendance of all lecture and laboratory sessions **ON TIME** is extremely important and thus mandatory. Lectures will be recorded. Students who are more than **15 minutes** late to my lab sections, unless it is due to an emergency (medical, car trouble, flat tire, etc.), will not be allowed in the lab and will be considered an unexcused absence. If you experience a situation which will result in you arriving to lab late, please contact me as soon as possible through email. Students who fail to arrive to lab on time may miss important information and instruction on the safe and proper use of equipment and reagents. Those who do not receive this instruction could present a danger to themselves, others, and the equipment and therefore may be barred from participating in the experiment and turning in the corresponding lab report. Your performance in the course is dependent on your attendance, so please make every effort to attend all classes as scheduled. Moreover, you are also expected to actively participate in all class activities.

  You will have the opportunity to earn points based on your participation in the lecture class. You will not be able to earn attendance points if you fail to bring your personal electronic device to lecture. Additionally, you will not earn attendance 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 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 40, 30, 20, or 0 course points respectively. Points will be earned during lectures #2-11. 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.

  Switching lab sessions after your scheduled lab is over is strictly prohibited. Switching is only allowed if you have a valid reason such as a UTD-sponsored event, medical/graduate school interview, or a planned medical treatment. To request approval for any section switch, you must inform your instructor **BY EMAIL** at least three business days before your planned absence. Include a list of alternate sections you are available to attend. If you have an emergency absence, contact your instructor by email as soon

as is reasonably possible. Due to limited seating availability, the ability to switch sections upon request is not guaranteed and is at the discretion of the instructional team.

- Pre-read: Before you come to each lab, read the experiment packet for background information and procedures for the experiment you will be doing. This helps you not only do well on the pre-lab assignments, but also **saves you time** and avoids unnecessary mistakes during the lab. Part of the lab procedures can include report pages that will be completed in the lab session.

- Late work: Pre-lab assignments must be completed in eLearning BEFORE the start of your regularly scheduled lab section. Late pre-labs will not be accepted. Reports for E2, E4, E6, E8-Section A, E11 are due at the end of assigned lab hours. Reports for E1, E3, E5, E7, E8-Section B, E9, E10 are due the week after the experiment data analysis is completed. Save a complete copy of your lab report file before uploading it to eLearning or turning it in to your TA. Any post-lab reports that are late will be assessed a **3-point** penalty for each **DAY** they are late. Arrange the time and location with your graduate TA to turn in your late reports. It is your responsibility to confirm that your TA received your late reports.

- Missed Exam
  Make-up exams will only be administered if the absence was due to extenuating circumstances, as judged by the instructor.

- Lab Safety: See handout provided on eLearning. Safety glasses and gloves will be provided in the laboratory.

- Class Materials:
  The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials 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 (including Chegg, Course Hero, etc.) except to implement an approved Accessibility Resource Center accommodation.** Failure to comply with these University requirements is a violation of the Student Code of Conduct.

CLASS RECORDINGS

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the AccessAbility Resource Center (ARC) has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

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.

COURSE CALENDAR

- The FIRST IN-PERSON FRIDAY MEETINGS START ON Sept 5 IN SLC 1.102 (section 001 and 002).
- THE FIRST LAB STARTS ON Sept 8-11 IN SLC 2.215 or SLC 2.206 (assigned according to student's enrolled lab section).

Week of	Monday through Friday Lab Exercises and Exams	Pre-Lab due	Report due	Friday Lecture Topic
Aug 25-28 and Sept 1-4	No Labs (Holiday, TA trainings, and Lab setup)			Sept 5: E1
Sept 8-11	E1: Bioinformatics*	E1		Sept 12: E2
Sept 15-18	E2: Microscopy	E2	R1, R2	Sept 19: E3
Sept 22-26	E3: Microbial Techniques	E3		Sept 26: E4
Sept 29-Oct 2	E4: Eukaryotic Cell Division E3: Results Analysis	E4	R4	Oct 3: E5
Oct 6-9	E5: Restriction Enzyme Digest and Plasmid Mapping	E5	R3	Oct 10: E6
Oct 13-16	**Midterm Exam (E1-E5) / lab practical**		R5	Oct 17: E7
Oct 20-23	E6: ELISA E7: Extracting and Amplifying mtDNA Day 1	E6 and E7	R6	Oct 24: E8
Oct 27-30	E7: Extracting and Amplifying mtDNA Day 2 E8: Bacterial Transformation	E8	R8-Sec A	Oct 31: E9
Nov 3-6	E9: Spectrophotometry* E8: Results Analysis	E9	R7	Nov 7: E10
Nov 10-13	E10: Enzyme Assay	E10	R8-Sec B, R9	Nov 14: E11
Nov 17-20	E11: Protein Separation by Gel Electrophoresis*	E11	R10, R11	Nov 21: Q & A
Nov 24-28	FALL BREAK			
Dec 1-4	**Final Exam (E5 Electrophoresis, E6-E11) / Lab Practical**			

Abbreviations: E= Experiment; R=Report

Highlighted in yellow: due by the end of lab section

Underlined: paper copy report pages required

***: Laptop REQUIRED DURING LAB**

Reports for E2, E4, E6, E8-SecA, E11 are due by the end of enrolled lab section.
Reports for E1, E3, E5, E7, E8-Sec B, E9, E10 are due before lab the week after the experiment data analysis is completed.

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.

These descriptions and timelines are subject to change at the discretion of the Professors.