

BIOL 2311.001 Introduction to Modern Biology I

FALL 2023 (AUGUST 21, 2023 – DECEMBER 6, 2023)

The University of Texas at Dallas

TEXTBOOK: Biology by Russell 5e CLASS HOURS, LOCATION: Monday, Wednesday, Friday, 11:00 – 11:50 AM (SCI 1.220)

Dr. Uma Srikanth: Email: ukrish@utdallas.edu

Office hours:

Mondays and Tuesdays 12:45 – 1:45 PM - or by appointment only

Office hours will be held in my office, FN 3.108.

Course Modality and Expectations

Instructional Mode- Lectures, workshops, and problem sessions	Traditional Classroom face-to-face
EXAMS	EXAMS will be available at the testing center (see table) https://ets.utdallas.edu/testing-center
WORKSHOPS	BIOL 2111.501 - Mondays 6:00 – 6:50 PM. Led by instructor and undergraduate teaching assistants. Please see table under workshops for topics covered.
UGLEPs' (Undergraduate led problem sessions)	These session times are listed in a table below. You may attend any one session every week. For topics covered, please check schedule of lectures table.
QUIZZES	Quizzes will be administered during lecture sessions. See schedule table for days and material covered.
Online assignments	MindTap is the name of the online assignment tool. Links to assignments/homeworks will be under assignments tab on eLEARNING. Online assignments are due on Saturdays by midnight and the assignments will become available after 12 AM the previous Sunday.
GRADES	Please see grading rubric table and notes below

Note – Workshops, UGLEPs', and online assignments will cover material taught in lectures the previous week.

Course Description:

Biology 2311 – This course presents some of the basic concepts of modern Biology with an emphasis on the molecular and cellular basis of biological phenomena. Topics include metabolism of biological macromolecules, cell structure and function, cellular respiration, cell division, cell cycle, cell signaling, classical and molecular genetics, and DNA replication, transcription, and translation. Some landmark experiments that will help provide an in-depth understanding of the concepts will be discussed. Student Learning Outcomes:

- 1. Students will be able to define the subcellular structures, macromolecules in a eukaryotic cell
- 2. Students will be able to explain and describe the basic functions of cells including energy production and utilization (in animal and plant cells), cell division, the basic mechanisms of genetic inheritance, structure of DNA, discovery of DNA, transcription and translation process, the regulation of gene expression, and selected aspects of the molecular basis of cancer.
- 3. Students will be able to understand basic cell signal transduction pathways and their final responses inside cells
- 4. Students will be able to develop hypotheses to interpret experimental observations and devise experiments to test these hypotheses.

Objectives:

Critical Thinking (CT)—to include creative thinking, innovation, inquiry, and analysis,

evaluation, and synthesis of information

Communication (COM)—to include effective development, interpretation, and expression of ideas through written, oral, and visual communication.

Empirical and Quantitative Skills (EQS)—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Teamwork (TW)—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Course Co-requisites, Pre-requisites, and/or Other Restrictions:

Co-requisite: concurrent enrollment in BIOL 2111.501 **Prerequisites** for this course are General Chemistry I and II.

All students enrolled in BIOL 2311 must also enroll in the workshop (BIOL 2111.501). Questions relating to homework assignments and quizzes may be reviewed during workshops. Questions remaining about lecture material will be addressed during workshop. The same grade will be assigned for both BIOL 2311 and BIOL 2111.

If for any reason you decide to drop BIOL 2311, you must also drop BIOL 2111.501

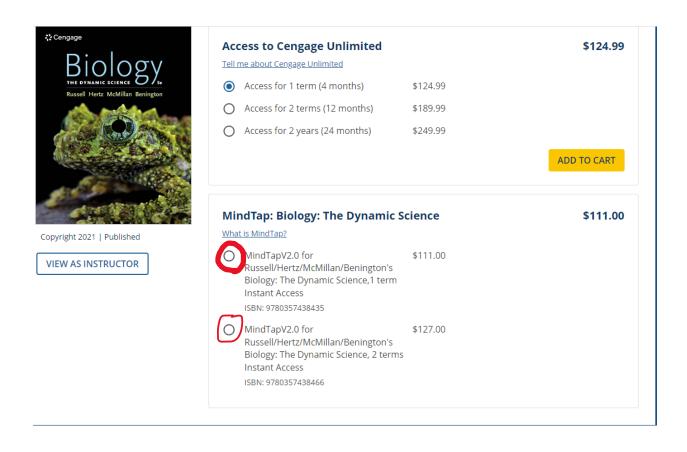
Course Materials:

Power point lectures and grades will be posted on eLearning. Please look for the Cengage/MindTap links on eLearning under the assignments tab.

Required Textbook and online tool for the course: Required: Biology by Russell, 5th edition and the online access tool, MindTap v2.0



Options to purchase course materials: When you try to register in MindTap using the link on the Elearning course page, you will see a page like this: You may choose one of the red circled options or the Cengage Unlimited



With a Cengage Unlimited subscription, you will have access to ALL Cengage eBooks and digital learning products. Cengage Unlimited has a 4-month subscription, a 12-month or a 24-month subscription (see above).

Depending on the option you choose (shown in red), you will have access to the online tool and the e-book for either Fall 2023 only or for both Fall 2023 and Spring 2024. This will account for students planning to take 2311(Biology I) in Fall and 2312(Biology II) in Spring.

WORKSHOPS:

Workshops run every week on **Mondays at 6:00 PM at SLC 1.202** unless canceled by the instructor. Workshops will be run by the instructor and/or undergraduate teaching assistants. Topics that will be covered in workshops are listed in the table below. Review sessions will be conducted in workshops. **WORKSHOPS BEGIN THE WEEK OF AUGUST 28, 2023.**

Dream Team TAs' – help the instructor in running the large workshop classes on Mondays. **Sumanth Kulkarni, Eesha Desai, Fareeha Faruk, Khadija Shariff, Amir Shaygan, Aishni Shrivatsava, Nehal Dave, and Lillia Hoang** are our dream teaching assistants this semester.

Only the first session will be recorded. No notes/problems/slides/recordings will be posted from these sessions. There are no workshops on exam days.

	WORKSHOP SESSION DATES	Chapter Names	Chapter #'s
Week 1	Aug 21	No workshop	
Week 2	Aug 28	Biological Molecules	3
Week 3	Sept 4	Labor Day Holiday No workshop	
Week 4	Sept 11	Cells and Membranes and Transport/REVIEW for EXAM 1	4, 5
Week 5	Sept 18	Membranes and Transport	5
Week 6	Sept 25	Energy	6
Week 7	Oct 2	Cellular Respiration	7
Week 8	Oct 9	EXAM 2 REVIEW	
Week 9	Oct 16	Mitosis	10

Week 10	Oct 23	Cell Cycle/Meiosis	10,11
Week 11	Oct 30	Cell Communication	9
Week 12	Nov 6	EXAM 3 REVIEW	13
Week 13	Nov 13	DNA Discovery	14
Week 14	Nov 20 – Nov 24	Fall Break & Thanksgiving Holidays	
Week 15	Nov 27	From DNA to Protein	15
Week 16	Dec 4	EXAM 4 REVIEW	

UNDERGRADUATE LED PROBLEM SESSIONS (UGLEPs'):

Our Undergraduate Teaching Assistants (UGTAs) (see names in the last column in the table below) will be leading these problem sessions under the guidance of the instructor and the dream team. Case studies will be presented, and some difficult concepts will be addressed. These sessions may last from 30 – 50 minutes. It is mandatory to attend at least two different sessions before every exam. And one of these mandatory sessions must be a review session. No notes/slides/problems/recordings will be posted from these sessions. No UGLEPs' on exam days.

Exam review days will be posted on eLearning.

PROBLEM SESSIONS (Days)	TIMES/Room #	UNDERGRADUATE TA
Mondays	10:00 – 10:50 AM GR 3.302	Shashank B Rahael Javaid
Mondays	5:00 – 5: 50 PM SCI 2.225	Jibran M Muhammed Ehsan

Tuesdays	9:00 – 9:50 AM SCI 3.260	Qamar Qamari
Wednesdays	9:00 – 9:50 AM SLC 2.304	Sam Ayyoub Ayesha Azhar
Wednesdays	5:00 – 5: 50 PM FO 3.616	Andrew Lam
Thursdays	1:00 – 1:50 PM FO 1.502 CB 1.106	Jayant Rajagopal Sameer Sajjad Borna Afkhami
Fridays	1:00 – 1:50 PM SCI 2.215 FN 2.414	Shreyas Perumal Ashita Jain

<u>Graduate student Teaching Assistants (GTAs'):</u> Sharon Kwende, Dibyo Maiti, Jessica Gomez, and John Camp.

Graduate Student Teaching Assistants (GTAs) will be responsible for grading tests, if needed. Our GTAs will grade based on the rubric provided by the instructor. The final letter grades are ASSIGNED BY THE INSTRUCTOR.

SCHEDULE OF LECTURES

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

	Lectures		Chapter Names	Chapter #'s	Quizzes
Week 1	1	Aug 21	Introduction		
	2	Aug 23	Biological Molecules	3	
	3	Aug 25	Biological Molecules	3	
		Assignments due August 26	Check eLearning		
Week 2	4	Aug 28	Biological Molecules	3	
	5	Aug 30	Biological Molecules	3	
	6	Sept 1	Cells	4	
		Assignments due Sept 2	Check eLearning		
Week 3		Sept 4	Labor Day Holiday		
	7	Sept 6	Cells	4	Quiz 1 Lectures 1-5
	8	Sept 8	Cells	4	
		Assignments due Sept 9	Check eLearning		
Week 4	9	Sept 11	Cells and Membranes and Transport	4, 5	Quiz 2 Lectures 6 - 8
	10, 11	Sept 13 – Sept 15	No lectures – EXAM 1 (Testing center)		Lectures 1 - 9
Week 5	12	Sept 18	Membranes and Transport	5	
	13	Sept 20	Membranes and Transport	5	
	14	Sept 22	Energy	6	
		Assignments due Sept 23	Check eLearning		
Week 6	15	Sept 25	Energy	6	Quiz 3 Lectures 12 - 14
	16	Sept 27	Cellular Respiration	7	
	17	Sept 29	Cellular Respiration	7	
		Assignments due Sept 30	Check eLearning		
Week 7	18	Oct 2	Cellular Respiration	7	
	19	Oct 4	Cellular Respiration	7	Quiz 4 Lectures 15 -18
	20	Oct 6	Cellular Respiration/Part II Enzyme inhibition Chapter 6	7/6	
		Assignments due Oct. 7	Check eLearning		
Week 8	21	Oct 9	Mitosis		
	22, 23	Oct 10 – Oct 13	No lectures EXAM 2 (Testing center)		Lectures 12 - 20

		Assignments due Oct. 14	Check eLearning		
Week 9	24	Oct 16	Mitosis	10	
	25	Oct 18	Meiosis	11	
	26	Oct 20	Meiosis	11	
		Assignments due Oct. 21	Check eLearning		
Week 10	27	Oct 23	Cell Cycle	10	Quiz 5 Lectures 24-26
	28	Oct 25	Cell Cycle	10	
	29	Oct 27	Cell Communication	9	
		Assignments due Oct. 28	Check eLearning		
Week 11	30	Oct 30	Cell Communication	9	Quiz 6 Lectures 27 - 29
	31	Nov 1	Cell Communication	9	
	32	Nov 3	Genes, Human Chromosomes, and Human Genetics		
		Assignments due Nov. 4	Check eLearning		
Week 12	33	Nov 6	Genes, Chromosomes and Human Genetics	13	
	34, 35	Nov 8 – Nov 10	No lectures EXAM 3 (Testing center)		Lectures 21, 24- 33
Week 13	36	Nov 13	DNA Discovery	14	
	37	Nov 15	DNA Replication	14	
	38	Nov 17	DNA Replication (No lecture – recording will be posted)	14	
		Assignments due Nov 18	Check eLearning		
Week 14		Nov 20 – Nov 24	Fall Break & Thanksgiving Holidays		
Week 15	39	Nov 27	From DNA to Protein	15	Quiz 7 Lectures 36-38
	40	Nov 29	From DNA to Protein	15	
	41	Dec 1	From DNA to Protein	15	
		Assignments due Dec 2	Check eLearning		
Week 16	42	Dec 4	From DNA to Protein	15	Quiz 8 Lectures 36 - 41
	43	Dec 6	Biotechniques/Development of Evolutionary thinking		
		Dec 11 - 13	EXAM 4 (testing center)		Lectures 36 - 43

GRADING POLICY:

There will be four tests given in BIOL 2311. The different tests and their weighted scores are listed below on this page. Scoring on the exams is done by the graduate Teaching Assistants, but the instructor

determines in advance what key points must be included in each answer to get full credit. The instructor checks your scores after the TA has graded the exams and assigns letter grades.

If you have questions about the grading or your performance in an exam, please see the instructors as soon as possible. Dedicated office hours will be held, and these will be to address any questions or concerns regarding performance in exams. These hours will be sent in an eLearning announcement. The final course grade will be based NOT on these individual letter grades, but on the total of the weighted numeric scores of all exams, homework/quizzes, assignments, team activities, attendance etc., Exact grade cutoffs will be determined based on grouping of total numerical grades. + and – will be assigned within each letter grade to further distinguish subgroups.

Students are assessed based on: (see rubric below)

- 1. Tests
- 2. Online assignments Learn it Assignments.
- 3. Online assignments Apply it and practice quizzes.
- 4. Quizzes
- 5. **Team activities**
- 6. Mandatory attendance

GRADING RUBRIC:

Your numerical grade will be calculated as follows:

	Total #	points for each	Dropped	Maximum possible points	% of final grade
Exams	4	70 or greater	0	280 or greater	76% (weighted)
Quizzes	8	10 or greater	1	70 or greater	8% (weighted)
Learn it assignments	10 or less	varied	1 (lowest)	Varied and graded	4% (weighted)
Apply it, homeworks, and practice quizzes	10 or less	varied	1 (lowest)	Varied and graded	7% (weighted)
Team activities	4 or less	varied	None	Varied	3% (weighted)
Mandatory attendance UGLEPS')	8	0.25 points each	None	2	2% (weighted)
•			TOTAL	Total points	100% (weighted)

Although letter grades may be provided after the midterm, these should be treated only as a reflection of your relative performance when compared to the rest of the class. The final course grade will not be based on these letter grades, but on the weighted scores of exams, online assignments (learn its, apply its, practice quizzes, homework), quizzes, team activities, and mandatory attendance (see rubric above). Exact grade cutoffs will be determined based on grouping of total numerical grades. + and – will be assigned within each letter grade to further distinguish subgroups.

The midterm and final grades assigned to the lecture section of the course (BIOL 2311.001) will be assigned to your workshop course (BIOL 2111.501) as well.

LETTER GRADES:

This will be determined by the instructor at the end of the course. The final grading scale may be different from the midterm grading scale.

MindTap ASSIGNMENTS:

All these assignments (pre (**Learn it**), post – (**Apply It**) and other (**homework, practice quizzes etc.**)) will be posted on eLearning. Assessments will not be accepted past the due date. Due date extension will be given under extenuating circumstances, at the discretion of the instructor. Please keep checking the eLearning course page for links to take you to the date view for assessments for weekly assignments. Please note that the assessments will be released in blocks according to the syllabus.

LEARN IT:

- 1. These assignments may be assigned every week.
- 2. These assignments <u>may be set up for grading</u>.
- 3. These assignments may be timed and may be set up for multiple attempts. When multiple attempts are allowed, the best score will be used.
- 4. If you incur technical difficulties, please email me the day before the assessment is due.
- 5. These assessment links can be found on the eLearning course page in the assignments tab. **USE THESE LINKS TO ACCESS AND COMPLETE YOUR LEARN IT ASSESSMENT.**

APPLY IT, HOMEWORK, and PRACTICE QUIZZES:

These assessments are assigned after the Chapter is discussed in lecture:

- 1. These may be assigned every week and may be timed.
- 2. These are graded assignments only.
- 3. <u>Some of these assignments</u> may be set up for <u>more than one attempt</u> and the best score will be recorded.
- 4. Homework and practice quizzes that are included will follow the same rules as mentioned in 2 and 3.
- 5. The assessment links can be found on the eLearning course page under the assignments tab. PLEASE ONLY USE THESE LINKS TO DO YOUR ASSESSMENTS.
- 6. If you incur technical difficulties, please email me the day before the assignment is due.

NOTE - Once you have completed these assignments, it will populate in your gradebook automatically. Please note that if you log into MindTap/Cengage and do your assessments there, your grade might not immediately transfer over to eLearning. Only assignments with links on eLearning will be counted towards your final grade. So please complete these assignments using the links on eLearning. And the extra assignments available on MindTap may be used for practice.

QUIZZES:

- 1. There are 8 guizzes in this class. Your lowest guiz will be dropped.
- 2. Each QUIZ is worth 10 points or more with a bonus.
- 3. QUIZZES are a combination of multiple choice, T/F, fill-in the blank, short answers, and mix-and-match style questions.
- 4. You have **10 minutes** to complete the quiz.
- 5. Quizzes will be taken online during class time.
- 6. Quizzes will be available for a small window of time.
- 7. Quizzes are closed book no resources are allowed.

EXAMS:

- 1. All four EXAMS are required, and EXAM DATES are shown in the syllabus.
- 2. The last exam, EXAM 4, is not cumulative.
- 3. All EXAMS will cover chapters taught in prior lectures.
- 4. EXAMS may be a mixture of multiple choice, T/F, Fill-in the blanks, mix and match, and a few free response questions.
- 5. EXAMS maybe anywhere from 65 75 minutes long.
- 6. EXAMS are available for a window of time at the testing center. Please be sure to register to take the exam. https://ets.utdallas.edu/testing-center

Please follow the testing center guidelines to take exams.

- 7. Alternate exam windows are not available unless it is a medical excuse with a doctor's note.
- 8. Details on exam windows, length of exam etc., will be posted as an announcement on eLearning before exams.
- 9. On the day of the EXAM, there are no face-to-face lectures.
- 10. EXAMS are closed book. No outside resources are allowed.
- 11. Once the exam is graded, you may approach the instructor during dedicated office hours only to go over your free-response portion of the exam. The MCQ portion of the exam will not be discussed during these hours.
- 12. NO EXAM GRADE WILL BE DROPPED FROM THE FINAL GRADE CALCULATIONS.

MAKE-UP EXAMS:

These exams will be scheduled on a need only basis. If you are unwell and unable to attend the exam, please email the instructor at the earliest available opportunity. You must request a make-up exam within a 2-day window of the original exam day. Also, please remember to provide a copy of the doctor's note, so that the make-up can be scheduled.

EXAM VIEWING OFFICE HOURS:

Instructor will send announcements on eLearning about office hours for discussing exams after they have been graded. Please be sure to come and visit the instructor during these in-person office hours. No grade changes will be made three weeks after the date of the exam.

MIDTERM GRADES:

Students are issued mid-term grades to apprise them of their progress within the semester. Midterm grades are important for advising and retention purposes, therefore it is vital that the grades accurately reflect academic progress. These grades are not a part of the permanent record and will not appear on academic transcripts.

TEAM ACTIVITIES:

These activities will be held during lectures. Announcements on eLearning will carry information on these team activities. Please understand that this activity carries points that will be used to calculate your final grade.

MANDATORY ATTENDANCE:

These are the 8 mandatory problem sessions (UGLEPs') that you have to attend – two before every exam. And one of these before every exam has to be the REVIEW session before each exam. You may attend any one of the five sessions (see table for times) available every week. Attending two sessions in the same week will only count as one. So, your attendance has to be in separate weeks.

Also, remember you may attend these sessions every week.

EXTRA CREDIT AND SPECIAL ASSIGNMENTS: This course has no extra credit or special assignment options.

COURSE POLICIES:

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 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

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in groups or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to university requirements, as presented in this syllabus. 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 Office of Student AccessAbility 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 Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the <u>Student Code of Conduct</u>.

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.

Email use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of everyone in an email exchange. The university encourages all official student email correspondence to be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individuals corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

WITHDRAWAL FROM CLASS

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I am unable to drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

DISABILITY SERVICES

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination based on disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodation. Individuals requiring special accommodation should contact the professor after class or during office hours.

OFF-CAMPUS INSTRUCTION AND COURSE ACTIVITIES

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel Risk Activities.htm. Additional information is available from the office of the school dean.

CLASSROOM CITIZENSHIP:

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 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 review the catalog sections regarding the <a href="mailto:credit/no credit/no credit/n

Supplemental Instruction (SI) is offered for this course. SI sessions are free group study opportunities, scheduled twice every week. These sessions are facilitated by an SI Leader, who has taken the course recently and has achieved a high final grade. Our SI leader, **Ashita Jain** will be introduced during the lecture.

Attendance is voluntary. For information about the days, times, and locations for SI sessions, use the link below

https://studentsuccess.utdallas.edu/supplemental-instruction/

Wellness initiative here at UTD:

https://campus-wellness.utdallas.edu/