

Syllabus: BIOL 5440.001
Cell Biology

Course Information

Course Prefix, Number, Section: BIOL 5440.001

Course Title: Cell Biology

Term: Spring 2026

Days & Times: Tuesday and Thursday; 1:00pm-2:15pm

Class Location: SCI 2.230

Professor Contact Information

Professor: Zhao Sun

Email Address: zhao.sun@utdallas.edu

Email Policy: Email is monitored between 8-5 on weekdays and responses are typically sent within 48 h.

Office Location: RL 1.704

Office Hours: In-person: by appointment

Professor: Yuki Shindo

Email Address: yuki.shindo@utdallas.edu

Email Policy: Email is monitored between 8-5 on weekdays and responses are typically sent within 48 h.

Office Location: FO 3.704B

Office Hours: In-person: by appointment

Course Pre-requisite

BIOL 5420 (Molecular Biology)

Course Description

This is a core graduate course that seeks to provide a firm foundation in advanced areas of cell biology and the application of this knowledge to experimental and research situations. Topics that are covered include: tissue culture, intracellular transport, cell signaling, cell organization, cell cycle, cell membrane, mitochondria, protein degradation, cell death, stem cell biology, cellular reprogramming, and laboratory techniques.

Student Learning Objectives/Outcomes

Upon completion of this course, students should be able to:

1. Be able to discuss and describe advanced areas of eukaryotic cellular biology.
2. Be able to apply this knowledge to problems likely to be encountered in a research/experimental setting.
3. Be able to read and critically understand a scientific journal article.

4. Be able to give a scientific presentation and test your comprehension of the material.

Required Textbooks and Materials

None

Suggested Course Materials

Text: Molecular Cell Biology (9th Edition) by Lodish et al. Published by Freeman

Topics

Introduction to the cell, Tissue culture, Intracellular transport, Cell signaling, Cell organization, Cell cycle, Cell membrane, Mitochondria, Protein degradation, Cell death, Stem cell biology, Cellular reprogramming

Academic Calendar (*subject to change*)

Dates	Class #	Lecture #	Topics	Instructor
Jan 20	1	1	Syllabus review, Introduction to the cell	Zhao Sun
Jan 22	2	2	Tissue culture	Zhao Sun
Jan 27	3	3	Intracellular transport I	Yuki Shindo
Jan 29	4	4	Intracellular transport II, Cell signaling I	Yuki Shindo
Feb 3	5	5	Cell signaling II	Yuki Shindo
Feb 5	6	6	Cell signaling III, Cell organization I	Yuki Shindo
Feb 10	7	7	Microscopy/ eLearning quiz 1	Joe Lombardo
Feb 12	8	8	Cell organization II	Yuki Shindo
Feb 17	9	9	Cell organization III	Yuki Shindo
Feb 19	10		Exam review	
Feb 24	11		Exam 1 (covers lectures 1-6, 8-9)	
Feb 26	12		Exam 1 follow-up	
Mar 3	13	10	Cell cycle I	Yuki Shindo
Mar 5	14	11	Flow cytometry/ eLearning quiz 2	Jacob Henderson
Mar 10	15	12	Cell cycle II	Yuki Shindo
Mar 12	16	13	Cell membrane	Zhao Sun
Mar 16-20			Spring Break	
Mar 24	17	14	Mitochondria	Zhao Sun
Mar 26	18	15	Lysosome, Autophagy, protein degradation	Zhao Sun
Mar 31	19	16	Cell Death	Zhao Sun
Apr 2	20	17	Stem cell biology	Zhao Sun
Apr 7	21	18	Cellular reprogramming	Zhao Sun
Apr 9	22		Exam review	
Apr 14	23		Exam 2 (covers lectures 10, 12-18)	

Apr 16	24		Exam 2 follow-up; presentation instruction	
Apr 21	25	19	Genomics/eLearning quiz 3	Ram Kumar
Apr 23	26		Student presentation	
Apr 28	27		Student presentation	
Apr 30	28		Student presentation	
May 5	29		Student presentation	
May 7	30		Student presentation	

Grading Policy

Exam Each exam (1-2) is worth 37.5%. Exams will be taken in class. You will have 75 minutes to complete the exam.	75%
Quiz Each quiz (1-3) is worth 5%. Quizzes will be online via eLearning.	15%
Student presentation/student evaluation Details of the student presentations/student evaluations will be provided before the Spring Break.	10%

Grading Scale

Grade	Percentage
A	89.5-100.00
B	79.5-89.4
C	59.5-79.4
F	0.00-59.5

Course Policies

Make-up Assignments	Make up assignments will only be allowed in extreme circumstances at the discretion of the instructor. Notify the professor (by email) as soon as you are aware of a problem, prior to the assignment due date.
Late Work	Late work will only be accepted in extreme circumstances at the discretion of the instructor. Notify the professor (by email) as soon as you are aware of a problem, prior to the assignment due date.
Class Materials	Lecture slides will be available to students prior to each lecture via eLearning. Lecture recordings may be provided when necessary such as during campus closures or unanticipated professor absences.
Class Attendance	Attendance to all classes is expected, but attendance will not be recorded. Lack of attendance may impact overall participation evaluation which may affect final scores.

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 group 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 .
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: <i>“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 Polies 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 credit/no credit or pass/fail grading option and withdrawal from class. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

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