BIOL 4301 – Cell Biology

Sul Ross State University International (INTL)

Spring 2026 ***Tuesday & Thursday:*** *9:30 - 10:45AM* ***Location:*** *Online Synchronous*

I'm excited to guide you through the fascinating world of Cell Biology and help you succeed this semester!

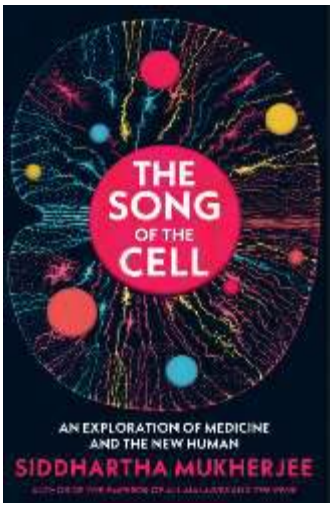
We will learn about cell structure, function, communication, immunity, regeneration, and disease.

Dr. Ferhat Ozturk

Associate Professor of Biology
Founding Program Director, Biomedical Sciences
Email: Ferhat.Ozturk@SulRoss.edu

Office: Eagle Pass Campus, Building D

Student Hours: Tuesdays at 2:30 – 3:30 PM on Blackboard Ultra



Required: *The Song of the Cell* by Siddhartha Mukherjee

Required: Blackboard Access to Hawkes Workbook

Required: *TopHat* web access for in-class assessments

Important Note: ***The syllabus is subject to change at the discretion of the instructor. Any changes/corrections to the course materials, assignment dates, or other updates will be communicated to the students ahead of time. It is your responsibility to check Blackboard for updates to the syllabus.***

Course Information

This course introduces fundamental principles of cell biology through a narrative and case-based approach. Using *The Song of the Cell* by Siddhartha Mukherjee as the primary text, students explore cell structure, function, communication, immunity, regeneration, and disease. Emphasis is placed on conceptual understanding, real-world applications, oral communication, and case study analysis rather than memorization

About Me & My Teaching Philosophy

I am Dr. Ozturk, and I am excited to be part of your academic journey this semester. I joined Sul Ross State University in Fall 2025 as Associate Professor of Biology and Founding Program Director of Biology at the Eagle Pass campus. I earned my Ph.D. in Cellular and Molecular Biology from the University of Nevada, Reno, and completed postdoctoral research at the University of Nebraska Medical Center.

Prior to SRSU, I taught BioSciences I at UTSA for seven semesters and served as Program Director of the USDA-funded HONEY Pathway, through which I have mentored over 70 student scientists pursuing careers in medicine, graduate education, industry, and teaching.

While my research focuses on medicinal honey, my broader passion is helping students think critically, engage scientifically, and connect biology to real-world challenges. My goal is to support your growth while equipping you with skills for lifelong learning and success.

Course Objectives

By the end of this course, students will be able to:

1. **Explain core cellular structures and processes**
   Describe the organization and function of major cellular components and key processes such as gene expression, signaling, cell cycle regulation, and cell death.
2. **Integrate structure–function relationships in cells**
   Connect molecular and structural features of cells to their physiological roles in normal function and disease.
3. **Interpret and analyze cell biology data**
   Evaluate experimental data from common cell biology techniques and draw evidence-based conclusions.
4. **Apply cell biology concepts to biomedical and real-world contexts**
   Use cell biology principles to explain disease mechanisms, therapeutic approaches, and advances in biotechnology and medicine.
5. **Communicate and collaborate using scientific reasoning**
   Clearly communicate scientific ideas and data interpretations and engage effectively in collaborative problem-solving activities within an online learning environment.

Student Learning Outcomes (SLOs) for Biology

By the end of this course, students will be able to:

- Explain the foundational concepts of cell theory and cellular organization.
- Describe how cells function individually and collectively within tissues and organs.

- Apply cell biology concepts to medical and biological case studies.
- Communicate scientific ideas clearly through oral explanation and visual materials.
- Demonstrate conceptual mastery through oral, AI-assisted evaluations.

Marketable Skills

This course strengthens critical thinking, data analysis, scientific communication, teamwork, and digital literacy skills applicable to careers in biomedical science, healthcare, biotechnology, and research-based professions.

Grade Distribution and Letter Grade

Grade	Percentage
A	90 – 100 %
B	80 - 89.5%
C	70 - 79.5%
D	60 - 69.5%
F	<60

Please NOTE: All GRADES posted on Blackboard are provided as Percentages not Points.

The Contribution % of each type of assessment is listed above and will be used to calculate the Weighted Total for the Midterm and Final Grades

- **There are no extra credits**
- **No late work will be accepted**

Activities and Grading

Assignment Category	Description	Percentage
Online Exams (3 total)	Two unit exams and one comprehensive final exam, including online and AI oral components	**60%**
Case Study Group Slides (3 total)	Group-based case studies with slide preparation and AI oral interviews	**15%**
TopHat Participation	In-class interactive questions and engagement activities	**15%**
Weekly Blackboard Discussions	Reflective and analytical discussion posts tied to readings and case studies	**10%**
Total		**100%**

Study Guide

This course follows a structured weekly learning cycle that integrates **assigned readings, synchronous class engagement, TopHat activities, and AI oral examinations**.

Students are expected to complete the assigned readings from *The Song of the Cell* **before** the scheduled class meeting. These readings form the conceptual foundation for live discussions, TopHat questions, group case studies, and exams.

During synchronous class sessions, students will engage in **TopHat-based activities**, discussions, and collaborative case study work. TopHat questions are designed to assess preparation, conceptual understanding, and real-time engagement. Responses may include conceptual, application-based, and reasoning-focused questions.

Exams are directly aligned with these learning activities.

- AI oral exam questions are drawn from assigned readings, TopHat questions, class discussions, and case study themes.
- Some questions may resemble in-class or TopHat questions, while others will be modified to assess deeper understanding, application, or synthesis.
- Students are expected to explain concepts verbally, justify reasoning, interpret scenarios or data, and demonstrate authentic understanding rather than memorized responses.

Consistent preparation and participation are essential. Students who do not engage with readings, TopHat activities, or synchronous discussions will be at a significant disadvantage during AI oral exams.

TopHat Participation Policy

TopHat is a required instructional tool used during live class sessions.

- TopHat participation points are earned by responding to questions during synchronous class meetings.
- Questions may assess comprehension, application, or conceptual reasoning related to assigned readings and discussions.
- Participation is graded based on **completion and engagement**, not correctness alone.
- Technical issues must be communicated promptly; repeated missed participation without communication may affect grades.

TopHat activities are a primary mechanism for reinforcing content and preparing students for exams.

AI Oral Exam Expectations

AI oral exams are designed to evaluate **conceptual understanding, scientific reasoning, and communication skills**.

During an AI oral exam, students may be asked to:

- Explain key cellular concepts in their own words
- Apply concepts to new biological or biomedical scenarios
- Interpret figures, data, or case-based prompts
- Clarify reasoning and respond to follow-up questions

AI oral exams assess **understanding, not memorization**. Students are expected to demonstrate familiarity with course material gained through readings, TopHat activities, discussions, and case studies.

Failure to engage consistently throughout the semester will directly impact performance on AI oral exams.

PLEASE READ THE FOLLOWING SECTION CAREFULLY.

Your final course grade will be ***automatically*** calculated from your total course **percentage** using the above table.

At the end of the course, sometimes, I receive emails from students saying things like,

"I have an 88.3%. Can't you just round up my grade to an A"?

The answer is **no**. Your final course grade is determined by your **Percentage grade**, not your points. Your final grade is simply and completely determined by the number of points you accumulate during the course. I can't "give" students one or two points so they can get the next higher grade, nor can you do extra work (e.g. a paper) to earn extra points. Every point must be earned by you and every point is important. Be prepared for each exam.

Communication Plan

There are several ways you can communicate with me:

- **Email:** You may email me at **Ferhat.Ozturk@sulross.edu**. Please begin your message with a professional greeting such as *Good morning*, *Hello*, or *Dear Dr. Ozturk*. Casual greetings like *hey*, *yo*, or *whassup* are not appropriate for academic communication.
- **Course Messages in Blackboard:** Use this option if you need to send me a private message regarding grades or other sensitive information. This is the only secure way to discuss grades. You must log in to Blackboard to send and receive course messages.
- **Response Time:** I will respond to all messages within **24–48 business hours**.

Don't hesitate to reach out and to join me during **Student Support Hours (office hours)**. I will be in my office or available online to answer questions and help you better understand the subject matter.

Course Management and Policies

Essential Student Information

SRSU Disability Services:

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartze@sulross.edu or ronnie.harris@sulross.edu. RGC students can also contact Alejandra Valdez, at 830-758-5006 or email alejandra.valdez@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Academic Integrity:

Students are expected to demonstrate scholarly behavior and honesty in all work. Submit only your own work, cite sources properly, and do not reuse assignments from other courses or copy from online materials. Unauthorized collaboration or the use of tools such as AI without permission is prohibited.

Violations may result in failing grades on assignments or the course, as well as further university consequences. I take academic dishonesty very seriously—but remember, **citations are your friend**. There is a difference between intentional dishonesty and honest mistakes made while learning. If you are unsure, please ask.

Do:

- Cite all sources used in assignments and presentations.
- Ask for clarification if you're not sure what counts as plagiarism.
- Collaborate only when group work is clearly allowed.
- Use your own words and ideas to show what you've learned.

Don't:

- Copy text or ideas from the internet, AI tools, or peers without citation.
- Submit work completed for another course as if it were new.
- Share answers or collaborate on exams or assignments when not permitted.
- Assume "small" plagiarism is acceptable—it is not.

Classroom Climate of Respect

This course is built on free expression, critical inquiry, and open discussion of ideas. Together, we share the responsibility of creating and sustaining an atmosphere of tolerance, civility, and respect for one another's viewpoints.

Disagreement and debate are valuable parts of learning, but they must always be conducted with professionalism and courtesy. Intimidation, harassment, or personal attacks of any kind will not be tolerated. Likewise, no one should be belittled or discriminated against on the basis of race, religion, ethnicity, age, gender, national origin, sexual orientation, or personal identity.

Challenging topics, including politically or socially sensitive issues, may arise in the study of biology and its broader impact. Our classroom will remain a respectful and safe space where all voices can be heard, questions can be asked, and learning can take place.

Commitment to Your Success

I believe education is a collaborative journey where curiosity, critical thinking, and inclusivity are central. My goal is to create a supportive learning environment that values your unique perspectives and experiences. I understand that challenges such as health concerns, financial pressures, or unexpected life events may affect your ability to fully engage in class.

My commitment is to support you not only in mastering the course material but also in developing the skills and confidence needed for lifelong learning and success. If you encounter difficulties inside or outside of class that impact your performance, please reach out to me. Together we can find strategies and resources to help you succeed.

As part of the Sul Ross Familia, I see each student as more than just a grade—I see you as a future scientist, professional, or educator. Many of my former students have gone on to medical school, dental school, graduate programs, industry positions, and teaching careers. I am here to challenge you, encourage you, and provide guidance as you explore your own path in biology.

For Remote/Online Courses Only - SRSU Distance Education Statement.

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

SRSU Library Services

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, https://library.sulross.edu/. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

Weekly Course Schedule – Cell Biology – Sp26

(Subject to minor adjustments)

Week	Dates	Topic / Theme	Reading (The Song of the Cell)	Assessments & Activities
1	Jan 20	**Course Introduction & Syllabus Review**	None	Syllabus review; syllabus quiz; AI oral exam orientation
1	Jan 22	What Is a Cell?	Prelude	TopHat participation
2	Jan 27–29	Discovery of the Cell & Cell Theory	Part One: Discovery	TopHat; Blackboard discussion
3	Feb 3–5	**Exam 1**	Parts One–Two (selected)	**Exam 1 (Feb 3)**
4	Feb 10–12	Cell Structure, Organelles & Cell Cycle	Part Two: The One and the Many	TopHat participation
5	Feb 17–19	Case Study I: Blood as a Cellular System	Part Three: Blood	Group work; discussion
6	Feb 24–26	Immunity & Self vs Non-Self	Part Three (selected)	Case Study I slide preparation
7	Mar 3–5	**Exam 2**	Part Three	**Exam 2 (Mar 3)**
8	Mar 10–12	**Case Study I Presentations**	Part Three	Slides due; AI oral interviews
9	Mar 24–26	Case Study II: Pandemic & Cellular Knowledge	Part Four: Knowledge	Group work; TopHat
10	Mar 31–Apr 2	Viruses, Vaccines & Cellular Response	Part Four (selected)	Case Study II slide preparation
11	Apr 7–9	**Case Study II Presentations**	Part Four	Slides due; AI oral interviews
12	Apr 14–16	Case Study III: Organs & Cell Specialization	Part Five: Organs	Group work; discussion
13	Apr 21–23	Aging, Stem Cells & Cancer	Part Six: Rebirth	Case Study III slide preparation
14	Apr 28–30	**Case Study III Presentations & Integration**	Part Six	Slides due; course synthesis
Final	**May 4**	**Final Exam**	Comprehensive	**Final Oral AI Exam**