

LECTURE SYLLABUS

BIOL 4301 Cell Biology Spring 2021

Instructor:	Dr Sean P. Graham	Office Hours:	email
Lectures:	2 x per week; live time TBA	Office phone:	432-837-8084
Laboratory:	none	Email:	sean.graham@sulross.edu
Office:	WSB 221		

Course Description:

The Cell is the fundamental unit of life. In fact, most biologists and philosophers consider the origin of life itself was the origin of the cell. This course will focus on the molecular aspects of cell structure and function. It will therefore serve as a review and elaboration on topics that the student has probably already been exposed to in introductory courses and genetics classes. Additionally, key metabolic pathways (glycolysis, aerobic respiration, and photosynthesis) introduced in other classes will be elaborated upon in this course in attempt to encourage mastery of these important topics. However, the course will also focus on detailed descriptions of cellular and organelle structure and function, which will likely be entirely new for some students. Therefore, the course will heavily involve all 6 of the program learning objectives developed by the biology program (see below).

Recommended Books/materials (NOT REQUIRED):

1. *The Cell: A Molecular Approach, 6th ed.* (or later editions). (2013).

Exams & Grading: The table below illustrates the grading for this course. I do not give comprehensive exams. Exam dates are posted below on course schedule. Note that I have greatly simplified your grading. The course is very straight-forward. Doing well on three exams, and attendance, are necessary for success. **IT'S UP TO YOU TO STAY ON TASK AND STUDY FOR THE EXAMS!**

3 lecture exams @ 100 pts ea	300
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Total Credit	300 points
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A 90 — 100%	B 80 — 89%	C 70 — 79%	D 60 — 69%	F 0 — 59%
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Attendance is mandatory. To encourage attendance, I don't post the lectures on blackboard. You need to show up and take notes. I will not waste class time calling roll because you are all adults. However, this will be a small class and I will notice when you are missing. **If you miss more than six times I'll drop you from my roll.** I determine this with impromptu, unannounced student sign-ins. **DO NOT MISS EXAMS** unless you have a **documented**, university-approved excuse (hospitalization, etc.), and I need to hear about this **BEFORE THE DAY OF THE EXAM.** Otherwise you're out of luck.

Student Learning Outcomes (SLOs) for Biology:

- 1) The student will be able to demonstrate an understanding of basic biological concepts, including but not limited to evolution via natural selection, cell theory, and the role and function of DNA.
- 2) The student will be able to demonstrate utilization of various field techniques toward addressing scientific questions in the specific discipline. These field techniques can include, but are not limited to, plant collection and processing, various animal collection techniques, ecological surveying and sampling, and biodiversity indexing.
- 3) The student will be able to use biological instrumentation to solve biological problems using standard observational strategies.
- 4) The student will develop writing skills by summarizing and critiquing recent relevant biological literature.

Student Learning Outcomes (SLOs) for Biology, MS:

1. Understanding and implementation of scientific methodology
2. *Utilization of field techniques toward addressing scientific questions**
3. Be able to utilize statistics toward the analysis of data within the discipline
4. Be able to effectively disseminate scientific findings using both written and oral communication.

Marketable Skills:

- 1) Ability to organize, analyze, and interpret data.
- 2) Proficiency in using presentation software.
- 3) Experience in managing time and meeting deadlines.
- 4) Ability to speak effectively and write concisely about scientific topics.
- 5) Experience in the development of professional email correspondence.

TENTATIVE SCHEDULE

	Date	Topic	
<i>Week 1</i>			
Lecture 1		Syllabus; origin of the cell	
Lecture 2			
<i>Week 2</i>			
Lecture 3		A brief tour of the cell	
Lecture 4			
<i>Week 3</i>			
Lecture 5		The composition of cells	
Lecture 6		Cell metabolism	
<i>Week 4</i>			
Lecture 7			
Lecture 8		DNA replication	
<i>Week 5</i>			
Lecture 9		Transcription & Translation	
EXAM	Feb 18	Exam 1	
<i>Week 6</i>			
Lecture 10		The nucleus	
Lecture 11		Protein transport	
<i>Week 7</i>			
Lecture 12		Cytoskeleton and cell movement	
Lecture 13			
Spring Break	March 8-12	No classes spring break	
<i>Week 8</i>			
Lecture 14		The plasma membrane	
Lecture 15		cell walls and cell interactions	
<i>Week 9</i>			
Lecture 16		Cell signaling	
Lecture 17			
<i>Week 10</i>			
Lecture 18		Tissues	
EXAM	Apr 1		
<i>Week 11</i>			
Lecture 19		The cell cycle	
Lecture 20			
<i>Week 12</i>			

Lecture 21		Cancer	
Lecture 22			
<i>Week 13</i>			
Lecture 23		The Immune System I: Innate immunity	
Lecture 24			
<i>Week 14</i>			
Lecture 25		The Immune System II: Adaptive Immunity	
Lecture 26			
<i>Week 15</i>			
April 28		Last day of class	
<i>Week 16</i>			
EXAM		Finals Week April 30; May 3-5	

Note – Lecture topics are subject to change according to course interest, organization, and timing constraints, however the exam dates will remain the same.

Sul Ross State University (SRSU) is committed to equal access in compliance with 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. Please contact me, Ms. Rebecca Greathouse Wren, M.Ed., LPC-S, Director/Counselor, Accessibility Services Coordinator, Ferguson Hall (Suite 112) at 432.837.8203; mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Students should then contact the instructor as soon as possible to initiate the recommended accommodations.

SPECIAL COVID-19 STUFF:

- 1) **Masks:** Face coverings are required indoors and outdoors on SHSU campuses unless you are in a private space or are engaged in an activity for which wearing a covering is impractical. In this class, if a student refuses to wear a mask/wear a mask properly, class will be cancelled, and according to SHSU policy, I will be forced to report the student to the Dean of Students office. Please note that a face mask that has an exhalation valve or vent is not acceptable. <https://www.shsu.edu/katsafe/face-coverings#2d0290a3-7bfe-4a69-9bab-14fb494c332b>
- 2) **Assigned Seating:** There will be an assigned seating chart for each group to encourage social distancing.
- 3) **Disinfection of Classroom Surfaces:** Each person should disinfect their space at the beginning and end of each class meeting. The university has provided disinfectant wipes in our classroom. When you enter the classroom, please take a wipe and use it to clean your space before settling in. If possible, please keep that wipe to use again to clean your space before you leave. Although, SHSU will provide access to hand sanitizer at the entrances to classroom buildings, I encourage you to also carry your own sanitizer with you in public.
- 4) **Orderly Dismissal:** When class is over, I will dismiss students row by row, starting with the row closest to the exit. Each day, I will end class a little early so that you have enough time to wipe down your desk and wait to be dismissed by row.
- 5) **Food & Drinks:** There will be no eating or drinking in the classroom. If you need to take a sip of your drink during class time, you may leave the room to do so.
- 6) **Paperwork:** In order to maintain social distancing and reduce the transmission of germs via paper, all paperwork requiring faculty signatures should be sent as digital documents via email, e.g., athletic schedules, doctor’s notes, SSD forms, etc. I will not pass out any papers to students and I will not accept any papers from students.
- 7) **Limited in-class interaction:** We will do our absolute best to maintain social distancing in the classroom. Please stay 6 feet away from my desk. I will be happy to answer general questions during class time, but I recommend that you address personal questions virtually.
- 8) **No in-person office hours.** My office is not large enough to accommodate the CDC’s recommendations for social distancing; therefore, all office hours will be held virtually.

9) **Travel:** *If you have travelled internationally, you are required to self-quarantine for 14 days upon your return. If you have travelled locally or out of state, you are required to self-quarantine for 14 days only if the local destination or state you traveled to is under a CDC COVID-19 travel advisory.* <https://www.shsu.edu/katsafe/restart2020/faq#b73e7b75-e764-44b3-a404-66f4d498f0f6>