

BIOLOGY FOR MAJORS II - Biol 1307
Syllabus and Course Information

Instructor: Sean P. Graham
Office: 221 WSB
Phone: (432) 837-8084
Class time: live time TBA; lectures recorded
and posted 2 x per week

Office hours: email
Email: sean.graham@sulross.edu (Type
"Biology 1307" in subject line)

TEXTBOOKS:

Lecture: Campbell Biology, 10th edition. [OPTIONAL]

COURSE DESCRIPTION

This course is the second half of a two-semester sequence and will cover foundational concepts of natural selection, evolution, and speciation, anatomy and physiology of animals, diversity of prokaryotes, fungi, plants, and animals, and ecological and environmental principles.

MARKETABLE SKILLS (MS):

The biology student graduating with a BS in Biology should have the following MS's:

- 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.

*MS's specifically addressed by this course

STUDENT LEARNING OUTCOMES (SLO):

The biology student graduating with a BS in Biology should be able to:

*SLO1** 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.

*SLO2** 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.

SLO3 use biological instrumentation to solve biological problems using standard observational strategies.

SLO4 develop writing skills by summarizing and critique recent relevant biological literature.

*SLO's specifically addressed by this course

ATTENDANCE. Missing any exam without notifying me in advance will result in a zero for that exam grade—no exceptions. Your reason for missing must adhere to the university excused absences policy (a documented family or health emergency) and you must tell me in person. You will have seven days (including weekends) from the exam date to make up a missed exam; the makeup exam will be different from the original exam. If you fail to appear (on time) for your scheduled exam or a makeup exam, you will be given a zero for that exam. ****If you arrive for an exam after other students have completed and turned in their exam, you will not be allowed to take the exam.**** Finally, if you miss a class, it is your responsibility to get notes and other important information from a classmate. I will not re-teach lectures on an individual basis.

GRADING

Your grade will be determined based on your performance in lecture component of this course.

Comprehension Tests (4 @ 100 pts) 300

Quizzes and reaction papers ~100

TOTAL ~400 points

The use of books, notes, cell phones, etc. during exams is not permitted. The only item allowed at your desk during an exam is a writing implement.

Lecture Schedule

Date	Lecture	Topic	Textbook Chapters
<i>Week 1</i>			
Jan 11	1	Descent with Modification	22
Jan 13	2	Descent with Modification	22
Jan 15	3	Descent with Modification	22
<i>Week 2</i>			
Jan 18	No Class	MLK Day	
Jan 20	4	Evolution of Populations	23
Jan 22	5	Evolution of Populations	23
<i>Week 3</i>			
Jan 25	6	Origin of Species	24
Jan 27	7	Origin of Species	24
Jan 29	8	Origin of Species	24
<i>Week 4</i>			
Feb 1	9	History of Life on Earth	25
Feb 3	10	History of Life on Earth	25
Feb 18	Exam	Exam 1	22-25
<i>Week 5</i>			
Feb 8	11	Phylogeny	26
Feb 10	12	Phylogeny	26
Feb 12	13	Phylogeny	26
<i>Week 6</i>			
Feb 15	14	Microbial Life: Prokaryotes	27
Feb 17	15	Microbial Life: Prokaryotes	27
Feb 19	16	Microbial Life: Protists	28
<i>Week 7</i>			
Feb 22	17	Plant Diversity I: How Plants Colonized Land	29
Feb 24	18	Plant Diversity II: The Evolution of Seed Plants	30
Feb 26	19	Plant Diversity II: The Evolution of Seed Plants	30

<i>Week 8</i>			
Mar 1	20	Fungi	31
Mar 5	21	Plant Structure, Growth & Development	35
<i>Spring Break</i> Mar 8-12	No Class		
<i>Week 9</i>			
Mar 15	22	Plant Structure, Growth & Development	35
Mar 17	23	Plant Nutrition & Transport	36
Mar 19	24	Evolution of Invertebrate Diversity	33
<i>Week 10</i>			
Mar 22	25	Evolution of Invertebrate Diversity	33
Mar 24	26	Origin & Evolution of Vertebrates	34
Mar 26	27	Origin & Evolution of Vertebrates	34
<i>Week 11</i>			
Mar 29	28	Origin & Evolution of Vertebrates	34
Mar 31	29	Animal Form and Function	
Apr 2	30	Animal Form and Function	40
<i>Week 12</i>			
Apr 1	Exam	Exam 2	33-36, 40
Apr 7	31	Ecological Principles	52
Apr 9	32	Ecological Principles	52
<i>Week 13</i>			
Apr 12	33	Population Ecology	53
Apr 14	34	Population Ecology	53
Apr 16	35	Population Ecology	53
<i>Week 14</i>			
Apr 19	36	Population Interactions	53
Apr 21	37	Population Interactions	53
Apr 23	38	Communities, Ecosystems & Biomes	54
<i>Week 15</i>			
Apr 26	39	Communities, Ecosystems & Biomes	54
Apr 28	40	Communities, Ecosystems & Biomes	54
Finals Week April 31; May 3-5	Exam	Exam 3	52-54

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>

CORE OBJECTIVES ADDRESSED:

- Team Work
- Communication
- Critical Thinking Skills
- Empirical and Quantitative Skills

Assessment of Core Objectives**Communication**

- Students will develop their written communication skills by writing critical reaction pieces on relevant current topics in Biology. Current topics will be explored through documentaries assigned to view as homework. The written paper responses will be assessed for content, personal analysis and interpretation, and quality of composition using a rubric and compared at the beginning and end of term.

Team Work

- Skills in team work will be developed and assessed using engaging scavenger hunt assignments. Students will use an identification key to identify plants on campus. This will require using analytical skills to collaborate on the identification of the plants, as well as teamwork to locate the plants in a timely fashion. The students will use their phones to take pictures of the correct species and upload them via blackboard, engaging their technological prowess. Teams will receive group grades based on their ability to correctly identify plants. This exercise will be repeated to assess improvement throughout the semester. Teamwork will be further fostered in the sister lab (BIOL 1107) which will involve group-based lab assignments such as dissections, plant and animal growth experiments, and ecological studies.

Critical Thinking

- Critical thinking will be assessed by developing phylograms as homework assignments. Phylograms are branching diagrams that depict the evolutionary relationships between organisms. Students will be instructed in lecture on how to interpret and produce a phylogram; then the students will be given specific characters of various organisms and asked to produce their own phylogram incorporating these characters. This will be an excellent exercise in critical thinking, requiring the student to assess and organize large amounts of information in a systematic way. These phylograms will be assessed using a rubric and the grades compared between phylogram assignments completed at the beginning and end of term.

Empirical and Quantitative Skills

- Exams will consist of mathematical questions to assess the understanding of concepts such as evolution, ecology, and population and community structure. These questions will assess student's ability to utilize their Empirical and Quantitative Skills. Questions of this nature will be included on all exams, and evaluation of success will be compared early and late term using a rubric. These skills will be further developed and assessed in the sister lab BIOL 1107.