

GENETICS – BIOL 3306
FALL 2020

Instructor: Dr Sean P. Graham

Office: WSB 221, *Phone:* 432-837-8084, *E-mail:* sean.graham@sulross.edu

Office Hours: virtual hours each week (email) and zoom by appointment

Lecture: 11-1215 T-TH ACR 204

Text: Genetics: From Genes to Genomes. Hartwell et al. (4th Ed). (NOT REQUIRED!)

Course description: Genetics is the secret of life: how living things self-perpetuate. The course will be a largely historical overview of the development of our understanding of this process from the earliest experiments on peas to the modern era of gene editing using CRSPR.

Student Learning Outcomes:

- 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.

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.

Attendance: Attendance is mandatory and the key to achieving a good grade in this class.

Students missing more than 6 lectures will be dropped from the class as per university policy and receive an F in the course. Arrangements for excused absences must be made beforehand. Exams missed for any reason must be made up within one week of the original exam date, but the reason for the absence must adhere to the university's acceptable absences policy (they must be documented family or health emergencies).

Ethical Conduct: Cheating and or plagiarism will not be tolerated and will be dealt with according to university policies. This includes quizzes—turn in your own work or else.

Grading:

There will be three lecture exams, each of equal contribution to the student grade, amounting to 75% of the grade for the course. Exams will cover the lecture material immediately preceding the exams *i.e.*, there will be no comprehensive final exam. The remaining 25% of the grade comes from assignments and quizzes.

	Weighting
Exam I	100
Exam II	100
Exam III	100
Assignments & Quizzes	100
TOTAL	400 pts

Grades: A 90 – 100% B 80 – 89% C 70 – 79% D 60 – 69% F 0 – 59%

Class schedule (subject to change):

	Date	Topic	Textbook Chapter
<i>Week 1</i>			
Lecture 1		Introduction: Genetics, the Secret of Life	1
Lecture 2		Mendel's principles	2
<i>Week 2</i>			
Lecture 3		Mendel's Principles	2
Lecture 4		Extensions of Mendelian Genetics	3
<i>Week 3</i>			
Lecture 5		Chromosomes	4
Lecture 6		Chromosomes	4
<i>Week 4</i>			
Lecture 7		Mitosis & Meiosis	4
Lecture 8		Linkage & Recombination	5
<i>Week 5</i>			
Lecture 9		Mapping	5
EXAM	Thursday, September 24	Exam I	
<i>Week 6</i>			
Lecture 10		DNA	6
Lecture 11		Special DNA lab Day!	6
<i>Week 7</i>			
Lecture 12		What is a gene?	7
Lecture 13		Gene expression	8
<i>Week 8</i>			
Lecture 14		Gene expression	8
Lecture 15		Genomes	10
<i>Week 9</i>			
Lecture 16		Genomes	10
EXAM	Thursday, October 29	EXAM II	
<i>Week 10</i>			
Lecture 17		Gene Movement	12-13

Lecture 18		Chromosomal Rearrangements	12-13
<i>Week 11</i>			
Lecture 19		Prokaryotic genetics	14
Lecture 20		Gene regulation	15-16
<i>Week 12</i>			
Lecture 21		Gene regulation	15-16
Lecture 22		Mutation and Cancer	17
<i>Week 13</i>			
Lecture 23		Mutation and Cancer	17
NO CLASS	Thursday, November 26	Thanksgiving break	
<i>Week 14</i>			
Lecture 24		Developmental Genetics and Biotechnology	18
Lecture 25		Variation and Selection	19
<i>Week 15</i>			
Lecture 26		Variation and Selection	19
NO CLASS		No classes – Dead Day	
<i>Week 16</i>			
FINAL EXAM		Last day of class Dec 2. Finals Week Dec 4, 7-9 Exam III	

Note – Lecture topics are subject to change according to course interest, organization, and timing constraints.

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>
- 10) **Illness:** Students who are experiencing COVID-19 symptoms, have been diagnosed with COVID-19, or have been in close contact with a person who has been diagnosed with COVID-19, PLEASE DO NOT COME TO IN-PERSON SESSIONS. <https://www.shsu.edu/katsafe/covid-19-protocols>

If you have tested positive for COVID-19, please self-report via the "Restart 2020" SHSU web page. Go to <https://www.shsu.edu/katsafe/restart2020/> and click on the link on the right titled "Report Your Positive Case" (alternatively, you may contact Erica Bumpurs directly at stdemb17@shsu.edu).

Students who are symptomatic or who have had known exposure to COVID-19 may be tested at the Student Health Center.