

BIOL 3302/5303 – Evolution

Fall 2022

Instructor: Dr. Dan H. Foley III
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Office hours: Monday - Thursday 10am – 11am via telephone or by appointment

Required Texts: Sterns, Stephen C. and Rolf F. Hoekstra. 2005. Evolution: an introduction 2nd edition. Oxford University Press. 575 pp.

Course Student Learning Objectives: There are five broad goals for this course:

- Can articulate and explain current Cell Theory of life functions and processes, the role and functioning of DNA as the molecule of heredity and evolutionary change, the evolution of life on Earth and the interactions of biotic and abiotic factors in the development of ecological communities.
- Can write a literature review summarizing and critiquing recent relevant biological literature
- Can articulate and summarize the principals of research design and data analysis
- Improve biological literacy by learning the basic facts, principles and concepts of evolutionary biology
- Improve scientific literacy by learning how biologists construct knowledge.

Marketable Skills: Students who successfully complete the BS in Biology program will gain the following marketable skills:

- Students will be able to organize, analyze, and interpret data. For the BS program, this will be handled by various upper level courses including the reading of scientific papers, which require the students to read data in papers, process and understand the results to see if they make sense, and the determine if their conclusions match those in the paper.
- Students will be proficient at using presentation software. This will be disseminated in the BS program by many of the upper level courses, which currently require semester project presentations.
- Students will acquire experience in managing time and meeting deadlines. Students will be provided with deadlines for completing these tasks, and work on meeting these requirements and deadlines. For the BS in Biology, course will have assignments and exams at scheduled intervals. If these deadlines for these assignments are not met, student's scores and grades will be penalized.
- Students will gain the ability to speak effectively and write concisely about scientific topics. In the BS program, semester project presentations and capstone research projects will be assessed including oral or poster presentations. This will culminate in presentation which can be secondarily used for any professional

meetings presented at. Presentations in the form of poster (for written) and oral (for verbal communication) will help to establish these practices.

- Students will acquire experience and guidance in the development of professional email correspondence. In the BS program, students will be instructed in their classes how to compose e-mail to their professors, including their name, complete sentences, respectful questions for clarification, and the proper way to address their faculty. This skill will be practiced through the degree in all classes through the correspondence between students and faculty over the 4 years they are in the program.

Tentative Lecture Schedule

(*note*: exact dates are subject to change, be sure to keep abreast of changes).

Date	Topic	Readings
August 23	Introduction	Chapter 1
August 25	Movie: " <i>Darwin's Dangerous Idea</i> "	
September 30	Adaptive evolution	Chapter 2
September 1	Adaptive evolution	Chapter 2
September 6	Movie: " <i>Extinction</i> "	
September 8	Neutral evolution	Chapter 3
September 13	Genetic Impact of selection on populations	Chapter 4
September 15	Genetic Impact of selection on populations	Chapter 4
September 20	Exam 1 (Chapters 1, 2, 3 & 4 and films)	
September 22	Maintenance of genetic variation Homework problem set due today	Chapter 5
September 27	Expression of variation	Chapter 7
September 29	Expression of variation	Chapter 7
October 4	The Evolution of Sex	Chapter 8
October 6	Movie: " <i>Why Sex?</i> "	
October 11	Evolution of life histories & sex allocation	Chapter 10
October 13	Evolution of life histories & sex allocation	Chapter 10
October 18	Sexual selection	Chapter 11
October 20	Sexual selection	Chapter 11
October 25	Exam II (Chapters 5, 7, 8, 10 & 11 and films)	
October 27	Speciation	Chapter 12
November 1	Key events in evolution	Chapter 15
November 3	Movie: " <i>Great Transformations</i> "	

Tentative Lecture Schedule Cont'd

Date	Topic	Readings
November 8	Major events in the geologic theater	Chapter 16
November 10	Major events in the geologic theater	Chapter 16
November 15	Response Paper Due Coevolution	Chapter 18
November 17	Movie: " <i>The Evolutionary Arms Race</i> "	
November 22	<i>Thanksgiving Holidays – No Classes</i>	
November 24	<i>Thanksgiving Holidays – No Classes</i>	
December 6	Exam III (Chapters 12, 14, 15, 16, & 18 and films)	

Grade assessment:

There will be **3** examinations during this course. All three exams will each be worth 100 points.

Exam Dates: Exam I – September 20th
 Exam II – October 25th
 Exam III – December 6th

All exams should be considered comprehensive because information in each chapter/unit builds upon previous material. Questions will be drawn from information presented in lecture, contained in the text, and through occasional class notes, handouts or additional assigned readings and video programs. Exam questions may consist of a few definitions or vocabulary/concepts, multiple choice questions and short essay questions. No notes, books, cell phones, PDA's, or other materials will be allowed during the exam. I will provide an English dictionary for your use if necessary. If you are an ESL student, please contact me to make arrangements for use of foreign language dictionaries and translators.

Homework Problem Set:

You will be required to complete one homework problem set dealing with Population Genetics. More specific details will be given in class.

The Response Paper:

You will be required to critically read "*Male Nipples and Clitoral Ripples*" by Stephen Jay Gould and write a 3 – 4 page Response Paper to this classic Gould article. More specific details will be given in class.

Extra Credit

There will be **NO** opportunities for extra credit, so don't even ask!
Therefore, there are a total of 500 possible points during this course:

		<i>Total points</i>	<i>Percent</i>	<i>Letter Grade</i>
Exam 1	100	450 – 500	90 – 100%	A
Exam 2	100	400 – 449	80 – 89%	B
Exam 3	100	350 – 399	70 – 79%	C
Homework	100	300 – 349	60 – 69%	D
<u>Response paper</u>	<u>100</u>			
Total	500	299 or less	> 60%	F

Study Tips:

Everyone has their own unique way of learning. How you study rather than how long you study will have a huge impact on your grade in this course. If you use all the resources available to you and take an active role in the learning process you will likely do much better.

Some specific tips are:

- Spend 15 – 20 minutes to skim through each reading assignment before class.
- Review the lecture notes and read the assigned reading
- Do the study questions at the end of each chapter
- Try to draw diagrams from lecture and the book from memory
- Make flash cards or important concepts and terms
- Call up a friend and try to explain what you have learned in class
- ASK QUESTIONS! You are not in this class alone, if you don't understand something, more than likely your classmates also don't understand.

Attendance:

This is an upper division college course. You are an adult, and you paid for this course. I will not be taking roll call. However, material for the exams will come largely from my lectures, so it is in your best interest to come and participate in class.

SRSU Disability Services. 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 each semester for each class. Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email rebecca.wren@sulross.edu. Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

Academic Honesty:

Cheating will not be tolerated. The University expects all students to engage in all academic pursuits in a manner that is above reproach and to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. "Cheating" includes, but is not limited to:

- Copying from another student's test paper, a laboratory report, other report, or computer files, data listings, and/or programs.
- Using, during a test, materials not authorized by the person giving the test.
- Collaborating, without authorization, with another person during an examination or in preparing academic work.
- Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing, in whole or in part, the contents of an unadministered test.
- Substituting for another student; permitting any other person; or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or test or the preparation of academic work to be submitted for academic credit.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of the rough and/or final versions of an assignment by a professional typist.

Plagiarism will not be tolerated. "Plagiarism" means the appropriation and the unacknowledged incorporation of another's work or idea into one's own work offered for credit. This includes verbatim written answers by colleagues with whom you might discuss laboratories exercises. Plagiarism also includes copying information from internet resources. To avoid plagiarism, make sure you always use your own words to construct your written answers.

SRSU Distance Education Statement. Students enrolled in distance education courses have equal access to the university's academic support services, such as Smarthinking, 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 information to verify students' identities and to protect students' information. The procedures for filing a student complaint are included in the student handbook. 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.

Technical Support. SRSU 24/7 Blackboard Technical Support: Toll Free: 888.837.6055.
Email: blackboardsupport@sulross.edu

SRSU Library Services. The Sul Ross Library offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting

the library's website, library.sulross.edu. Off-campus access requires your LoboID and password. Check out materials using your photo ID. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).