

BIOLOGY 3309 HISTORY OF SCIENCE (3 CREDIT HOURS)
Spring 2022 Sul Ross State University

Instructor: Ms. Anne Marie Hilscher

Office Hours: MWF 8:30-9:00 & 10-11:30; M 1-3; TR 2-3; & by appt.

Office: WSB 220

Lecture: Tues/Thurs 11:00 am – 12:15 pm WSB 107 and DE

Email: ahilscher@sulross.edu (Type **Biology 3309** in subject line)

REQUIRED BOOK:

Gribbin, John (2004). *The Scientists: A History of Science Told Through the Lives of Its Greatest Inventors*, Random House. ISBN-10 : 0812967887; ISBN-13 : 978-0812967883

This course explores the evolution of scientific discovery over time, from ancient sciences to the Renaissance. We will examine scientific discoveries and understand the multicultural influence on the development of science over time. Topics will reach beyond biology and cover physics, astronomy, chemistry, and medicine.

GRADING

Assignments (7@20 pt ea)	140	36%
History of Science Exhibit Project	100	26% (due 4/08)
Exams (3@50 pt ea)	150	38%
TOTAL	390	100.0%

ASSIGNMENTS. Assignments may take the form of reflections, short answer sets, and/or short essays over readings and current topics. Assignments will be submitted through Blackboard. Assignments will allow you to demonstrate a thorough comprehension of the concepts introduced in the readings. Your perception of these readings will be shaped by your worldview and experience. Feel free to report your views but do so in a considerate and thoughtful manner.

HISTORY OF SCIENCE EXHIBIT PROJECT: You are the curator of a new exhibition on the History of Science. You have been asked to come up with a design of an exhibition that will use ten objects to illustrate this history. *What objects will you choose, and how will you guide their interpretation?* You have no financial constraints (so any object can be bought, borrowed, or made), but there is limited space. You have been allocated a gallery space measuring 24' x 40'. (I will provide you with a floorplan.) Write about and illustrate the design for your exhibition. It must include the following:
1) A list of ten objects to be displayed,
2) A drawing that shows how the objects will be arranged to guide visitors and interpretation, and
3) An essay that interprets the objects and details their significance to the history of science.

EXAMS. Exams will cover topics discussed in class and/or readings. Exams are not comprehensive.

ATTENDANCE

- Missing any exam (or submitting it late) without notifying me in advance will result in a zero for that exam grade—no exceptions. You must email or tell me in person before the test/exam.
- Finally, if you miss a class, it is your responsibility to get notes and other important information from a classmate.

STUDENT LEARNING OUTCOMES (SLOs)

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

- 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.

TENTATIVE SCHEDULE

WEEK	DATE	TR 11:00-12:15
1 <i>ONLINE</i>	T Jan 11	Intro to the course; What is Science?
	R Jan 13	What is Science, cont.; A#1 due 01/14
2	T Jan 18	In the Beginning
	R Jan 20	In the Beginning, cont.
3	T Jan 25	Needles and Numbers
	R Jan 27	Needles and Numbers, cont.; A#2 due 1/28
4	T Feb 01	The Dark Ages
	R Feb 03	Medieval Science
5	T Feb 08	Medieval Science, cont.
	R Feb 10	EXAM I; A#3 due 2/11
6	T Feb 15	The Scientific Revolution
	R Feb 17	The Scientific Revolution, cont.
7	T Feb 22	The Scientific Revolution, cont.
	R Feb 24	Science and Religion; A#4 due 2/25
8	T Mar 01	Coughs, Sneezes, and Germs
	R Mar 03	Coughs, Sneezes, and Germs, cont.
9	NO CLASSES – SPRING BREAK MARCH 07-11	
10	T Mar 15	Tiny Pieces of Matter
	R Mar 17	The Darwinian Revolution; A#5 due 3/18
11	T Mar 22	The Darwinian Revolution, cont.
	R Mar 24	EXAM II;
12	T Mar 29	Science and Medicine
	R Mar 31	Science and Medicine, cont.; A#6 due 4/01
13	T Apr 05	Science and Gender
	R Apr 07	Science and Gender; PROJECT DUE FRIDAY 4/08
14	T Apr 12	War and Space
	R Apr 14	War and Space, cont.; A#7 due 4/15
15	T Apr 19	Modern Science
	R Apr 21	Modern Science, cont.
16	T Apr 26	Modern Science, cont.
	R Apr 28	NO CLASSES—STUDY DAY
17	M May 02: FINAL EXAM (EXAM III) 10:15 am – 12:15 pm	

CORE OBJECTIVES ADDRESSED:

- 1) Communication Skills – Students will effectively communicate the results of scientific investigations, using oral, written, and visual communication, either in group discussions or on written exams.
- 2) Critical Thinking Skills – Students will include creative thinking, innovation, inquiry, and analysis required to relate new information with previous information in a way that demonstrates the diversity and similarity due to evolutionary ancestry.
- 3) Empirical and Quantitative Skills – Students will use basic math skills to solve problems (e.g., related to genetic outcomes, cellular energy production, and probability) resulting in informed conclusions.
- 4) Teamwork Skills – Students will work effectively with others to support a shared goal during lab sessions on activities, such as dissections, problem solving, and other experimental procedures.

MARKETABLE SKILLS: A student getting a degree in the biological sciences would be expected to acquire the following marketable skills by graduation.

- 1) Students will be able to organize, analyze, and interpret data.
- 2) Students will be proficient at using presentation software.
- 3) Students will acquire experience in managing time and meeting deadlines.
- 4) Students will gain the ability to speak effectively and write concisely about scientific topics.
- 5) Students will acquire experience and guidance in the development of professional email correspondence.

ADA Statement: Any student who because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make necessary arrangements. If an accommodation is needed, students must present their accommodation letter, obtained from Accessibility Services, as soon as possible. Please note that instructors are not permitted to provide classroom accommodations to a student until the appropriate verification has been received. Accessibility Services is in Ferguson Hall room 112. You can make an appointment by calling Mary Schwartze Grisham at 432 837-8203.

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Academic Integrity. Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.