

Biology 3300 – Survey of Basic Sciences



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Office hours: Not set, since this is an online-only class. Email, Piazza, texting.
In-person appointments by request.

Required Texts: Wikibooks.org Look for [Science: An Elementary Teacher's Guide](#) This is a free, open-source book authored by the students from the previous two semesters. You will be improving upon this book as you use it.

Student Learning Outcomes: The overall goal is for you to become better at teaching science content to children. I hope to help you increase in your enthusiasm towards science, your understanding of science, and your ability to teach science. The broad outcomes for this course related to the units of study are:

- Understand teaching theories and methodologies of elementary instruction as they pertain to elementary science.
- Achieve basic understanding of Physics principles such as matter, energy, light, sound, electricity and magnetism.
- Achieve basic understanding of Chemistry principles such as elements, molecules, chemical bonding, pH, and chemical reactions
- Achieve basic understanding of Earth Science subjects such as weather, seasons, climate, and plate tectonics.
- Achieve basic understanding of Biology principles, such as evolution of animal, plant, and other life, and basic organization and functioning of the human body.
- Gain practical ideas to carry out a wide variety of demonstrations and experiments suitable for elementary students.
- Be prepared for the science-related questions on the TExES exam

Attendance and Participation:

Since we do not have set class times there will be no attendance, but participation matters. Assignments will be due every Tuesday night, but you are encouraged to work on them sooner and discuss them on the class Piazza site. I will provide links to some instructional videos on the various topics, plus you have your book and other resources. If unable to answer questions or meet objectives, please contact me for further explanations. I will communicate by sending out announcements over Blackboard and Piazza, so please check regularly (notices of announcements will be sent to your school email account).

This class will be very fast-paced, since we are compressing 17 weeks of information into 5 weeks! I strongly counsel you to work on this class often, and I will try to keep up with creating assignments, worksheets, educational material, and exams, as well as keeping current with grading.

Semester Overview (exact dates and topics subject to change)

Tentative Lecture Schedule: 1 week per unit

Unit 1: Philosophy & Practice of Science. Exam 1 Wed. June 7.

Unit 2: Physics. Exam 2 Wed. June 14.

Unit 3: Chemistry. Exam 3 Wed. June 21.

Unit 4: Earth Sciences. Exam 4 Wed. June 28.

Unit 5: Biology. Exam 5 Wed. July 5 (with final).

Final Exam Wednesday, July 5

GRADING:

5 unit tests = 50 points each.....250 points

1 comprehensive final exam.....100 points

Assignments for each unit = 50 points/unit.....250 points

Editing of the wikibook.....50 points

Participation in online discussions.....50 points

TOTAL.....700 points

- The exact nature of the exams and assignments has not yet been determined. Most assignments will count for 10 points each. I anticipate giving more than 25 assignments and dropping your lowest 2. Some units will have more assignments than others.
- You will always have at least 24 hours to complete an assignment. If assignments are not submitted by the due date they will not be graded (no late work accepted).
- For editing the wikibook, maintain a document (preferably a Word file) that details all of your activities. Include your wikibook login name and a summary of your activities. To receive full credit you must show that you did at least 20 minutes of work on at least 5 occasions. You do not need to contribute to every chapter, but you should contribute to at least 5 different chapters (you can choose multiple chapters in the same unit). Additional instructions on how to edit will be forthcoming, but go ahead and start by making small edits wherever you like.
- For online discussions, also maintain a document where you copy/paste all that you wrote on Piazza or on Blackboard discussions (include the date of each entry). Evidence of active participation in each unit, including asking and answering questions, will result in full credit. Format the document so it is easy for me to see that you contributed regularly over the time of the course.
- Exam questions will be drawn from information in your textbook, as well as assigned websites, videos, or readings. Exam questions will mainly be multiple choice, but some may be short answer or other style of questions. I will try to test for understanding, not just memorization.
- You will have occasional opportunities for extra credit. No more than 30 points extra credit can be earned by any one individual.
- Your percentage represents your minimum grade. I reserve the right to make changes to the grading scale, based on my own judgment, which may result in you receiving a higher grade than your raw percentage. However, this is not guaranteed.

You are encouraged to discuss the assignments and the material, but for tests you must do your own work and not speak to others, even if it is an open-book, at-home exam. The final exam will be in the computer lab of your nearest campus. It is undecided at this point if other exams will all be at home or if some will be at school.

Here are the state Science Generalist Standards this class is designed to meet

THEORY & METHODOLOGY

- Standard I:** manages classroom, field & laboratory activities to ensure the safety of all students & the ethical care & treatment of organisms & specimens
- Standard II:** the correct use of tools, materials, equipment & technologies
- Standard III:** knows & understands the process of scientific inquiry & its role in science instruction
- Standard IV:** has theoretical & practical knowledge about teaching science & about how students learn science
- Standard V:** knows the varied & appropriate assessments & assessment practices to monitor science learning
- Standard VI:** the history & nature of science

CONTENT & PROBLEM SOLVING

- Standard VII:** how science affects the daily lives of students & how science interacts with & influences personal & societal decisions
- Standard VIII:** the science content appropriate to teach the statewide curriculum skills (TEKS) in physical sciences
- Standard IX:** the science content appropriate to teach the statewide curriculum skills (TEKS) in life science
- Standard X:** the science content appropriate to teach the statewide curriculum skills (TEKS) in Earth & space science
- Standard XI:** the unifying concepts & processes that are common to all sciences
- Standard XI:** the unifying concepts & processes that are common to all sciences

Americans with Disabilities Act (ADA):

Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartz, M. Ed., L.P.C., in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8691. E-mail: mschwartz@sulross.edu

If you are an ESL student, please contact me to make arrangements for use of foreign language dictionaries and translators.

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.

NOTE: If you are caught in the act of cheating you will receive an automatic zero points for that exam. I reserve the right to also give you an automatic F for the course.