

Biology 3300 – Survey of Basic Sciences Spring 2022

Instructor: Dr. Dan H. Foley III
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Office hours: Monday - Thursday: 10:00am – 12:00pm
Friday: by appointment

Required Texts: Tolman, Marvin N. 2002. Discovering Elementary Science: Methods, Content and Problem-Solving Activities, 3rd Ed. Allyn & Bacon, Boston, MA 560 pp.

Course Objective: There are six broad goals for this course:

- Basic Survey of Sciences students will review teaching theories and methodologies of elementary instruction as they pertain to elementary science.
- Basic Survey of Sciences students will know and comprehend such basic physics principals as light, sound, energy, matter, electricity and magnetism after discussions of such topics.
- Basic Survey of Sciences students will know and comprehend such basic Earth science subjects as weather, seasons, climate, and plate tectonics after discussions of such topics.
- Basic Survey of Sciences students will know and comprehend basic categorization and organization of animal life, after discussions of such topics.
- Basic Survey of Sciences students will know and comprehend basic categorization and organization of plant life, after discussions of such topics.
- Basic Survey of Sciences students will know and comprehend basic organization and functioning of the human body, after discussions of such topics.

Marketable Skills:

Students who successfully complete this course will gain expertise in:

- Pedagogical philosophies of learning
- Science competencies necessary for elementary education
- Critical thinking
- Problem solving

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 notes and textbook and assigned web page readings, so it is in your best interest to participate in class.

Tentative Lecture Schedule

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

Date	Topic	Readings
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UNIT 1—THEORY & METHODOLOGY

During the following 3 weeks the following Science Generalist Standards will be addressed:
The science teacher:

- Standard I:** manages classroom, field & laboratory activities to ensure the safety of all students & the ethical care & treatment of organisms & specimens
- 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 student learn science
- Standard V:** knows the varied & appropriate assessments & assessment practices to monitor science learning

Week 1 (Jan. 10-Jan. 14)	Introduction, Syllabus, Principles of Learning	Chapter 1 & 2
Week 2 (Jan. 18-Jan. 21)	Problem Solving & Research	Chapter 3
Week 3 (Jan. 24-Jan. 28)	Questioning	Chapter 4

UNIT 2—CONTENT & PROBLEM SOLVING

SECTION 1 – PHYSICAL SCIENCES

During the following 6 weeks the following Science Generalist Standards will be addressed:
The science teacher knows & understands:

- Standard VI:** the history & nature of science
- 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 XI:** the unifying concepts & processes that are common to all sciences

Week 4 (Jan. 31-Feb. 4)	Exam I (Chapters 1, 2, 3, & 4) Monday Jan. 31st from 8am-8pm Energy & Matter	Chapter 13
Week 5 (Feb. 7-11)	Heat	Chapter 14
Week 6 (Feb. 14-18)	Light & Electromagnetic spectrum	Chapter 15
Week 7 (Feb 21-25)	Exam II (Chapters 13, 14 & 15) Monday February 21st from 8am-8pm Sound	Chapter 16
Week 8 (Feb. 28-March 4)	Electricity and Magnetism	Chapter 17
Week 9 (March 7-11)	<u>Spring Break---No Classes</u>	

SECTION 2 – EARTH & SPACE SCIENCE

During the following 3 weeks the following Science Generalist Standards will be addressed:
The science teacher knows & understands:

- Standard II:** the correct use of tools, materials, equipment & technologies
Standard VI: the history & nature of science
Standard VII: how science affects the daily lives of students & how science interacts with & influences personal & societal decisions
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

Week 11 (March 21-25)	Exam III (Chapters 16, 17 & 18) Monday March 21st from 8am-8pm The Environment	Chapter 9
Week 12 (March 28-April 1)	Weather, Seasons & Climate	Chapter 19
Week 13 (April 4-8)	The Earth	Chapter 20

SECTION 3-LIFE SCIENCES

During the following 3 weeks the following Science Generalist Standards will be addressed:
The science teacher knows & understands:

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

Week 14 (April 11-14)	Exam IV (Chapters 9, 19 & 20) Monday April 11th 8am-8pm Animals	Chapter 10
Week 15 (April 18-22)	Plants	Chapter 11
Week 16 (April 25-27)	The Human Body	Chapter 12
Week 17 (May 2 nd)	Final Exam Monday May 2nd (8:00 am – 8:00pm) (50% Chapters 10, 11 & 12; 50% Comprehensive)	

Grade assessment:

There will be **4 lecture** examinations. These four lecture exams will each be worth 100 points. Additionally, there will be a mandatory comprehensive final exam worth 150 points.

Therefore, there are a total of 550 possible points during this course:

4 regular semester exams	400
<u>Final exam</u>	<u>150</u>
Total	550

Your final grade in this course will be determined by the cumulative number of points you earn over all five exams. Your final grade will be determined by the following scale:

<u>Total points</u>	<u>Percent</u>	<u>Letter Grade</u>
495 – 550	90 – 100%	A
440 – 494	80 – 89.9%	B
385 – 439	70 – 79.9%	C
330 – 384	60 – 69.9%	D
329 – 000	< 60%	F

Questions will be drawn from information presented in lecture, information from your textbook, and through occasional class notes, handouts or additional assigned readings. 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.

Extra Credit

There will be **NO** opportunities for extra credit, so don't even ask!

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
- 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.

Disabled Students:

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. RGC students seeking accessibility services should contact Paulette Harris, Executive Assistant to the Vice President

and Dean, at 830-279-3023 or email pharris@sulross.edu. Ms. Harris's office is at 2623 Garner Field Road, Uvalde, TX 78801 (this is the mailing address, too).

SRSU Distance Education Statement.

Students enrolled in distance education courses have equal access to the university's academic support services, such as 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. 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. Directions for filing a student complaint are located in the student handbook.

Libraries

The Bryan Wildenthal Memorial Library in Alpine.

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 logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

The Southwest Texas Junior College (SWTJC) Libraries at Uvalde, Del Rio, and Eagle Pass. Offer additional access to library spaces and resources. Del Rio, Eagle Pass, and Uvalde students may also use online resources available through SWTJC website, library.swtjc.edu. The SWTJC Libraries serve as pick-up locations for InterLibrary Loan (ILL) and Document Delivery from the Alpine campus.

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.

Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Diversity Statement

"I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you."