

# PLANTS AND PEOPLE

BIOL 2405

SUL ROSS STATE UNIVERSITY

SPRING 2023

**Instructor:** Jeff Keeling

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**Course Meeting Times:** TR 9:30 – 10:45 a.m. and Lab on Thursday, 1:00 – 2:40 p.m., in Room 201/204/206.

**Office Hours:** M 4:30 p.m. – 5:30 p.m., TR 3:00 p.m. – 5:00 p.m.

**Course Description:** A four-hour introduction of the uses and impacts that various plants have on our everyday lives. From ancient photosynthetic organisms releasing enough oxygen into the atmosphere to support aerobic life, the formation of the earth's topsoil, the dawn of agriculture and civilization, and to our modern understanding of genetic engineering, plants have and continue to shape the evolution and success of the human species.

**Recommended Text:** Simpson, B.B. and M.C. Ogorzaly. 2014. *Economic Botany: Plants in our world*. McGraw-Hill, 4<sup>th</sup> edition.

## Tentative Schedule of Lectures and Topics (subject to change)

Week 1 (1/18 – 1/20)	Introduction, "Kiss the Ground"
Week 2 (1/23 – 1/27)	Review of fundamental botanical concepts
Week 3 (1/30 – 2/3)	Plant Evolution, Classification, and Life Cycles
Week 4 (2/6 – 2/10)	Angiosperms; Taxonomy
Week 5 (2/13 – 2/17)	Advanced Genetics; Exam 1
Week 6 (2/20 – 2/24)	DNA/RNA/Protein Synthesis
Week 7 (2/27 – 3/3)	Advanced Photosynthesis
Week 8 (3/6 – 3/10)	Origins of Agriculture; Exam 2

**(3/13 – 3/17)**

**SPRING BREAK (No classes)**

Week 9 (3/20 – 3/24)	Herbs and Spices
Week 10 (3/27 – 3/31)	Perfumes, Oils, and Fats
Week 11 (4/3 – 4/7)	Vegetables and Fruits
Week 12 (4/10 – 4/14)	Medicinal Plants; Exam 3

**APR 14**

**LAST DAY TO DROP WITH A 'W'**



Week 13 (4/17 – 4/21)	Psychoactive Drugs from Plants
Week 14 (4/24 – 4/28)	Psychoactive Drugs from Plants (Caffeine and Alcohol)
Week 15 (5/1 – 5/5)	Wood, Paper, Textiles; Ornamental Plants
Week 16 (5/8 – 5/12)	Conservation Ecology
<b>Week 17 (5/15 – 5/17)</b>	<b>Exam 4 (FINAL)</b>

Grades: Exams will cover both lecture and lab material.

Exam 1	appx. 100-150 points
Exam 2	appx. 100-150 points
Exam 3	appx. 100-150 points
Term Paper	130 points
Total	appx. 580 points

**Course Objectives (including lab):**

- 1) Recognize the varied uses of plants in human affairs.
- 2) Relate the geographic origins of useful plants to their current geographic distributions.
- 3) Analyze tendencies of particular types of useful materials to occur in specific families of plants.
- 4) Develop an understanding of scientific and common names of useful plants.
- 5) Describe processes used to convert raw plant material to more useful forms.
- 6) Understand the toxic and therapeutic properties of plants
- 7) Understand photosynthesis and aerobic/anaerobic respiration.
- 8) Recognize the role of Mendelian genetics and cytogenetics in plant breeding.
- 9) Understand the role of the processes of molecular biology in plant growth and reproduction, including the production of plant products useful to humans.

**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.

**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.

***SRSU Attendance Policy.*** Roll will be taken during each class meeting. The SRSU catalog states “The instructor may, at their discretion, drop a student from a course when the student has a total of nine absences in lecture and three absences in lab. An absence is defined as non-attendance in fifty minutes of class. Exams must be taken on the scheduled exam date that will be announced at least a week prior, unless other arrangements have been made with the instructor. Exams must be made up within a week form the scheduled date. **RULE TO LIVE BY: DON’T MISS ANY CLASSES!** If you absolutely have to miss, make sure you let me know before.

***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.

### **ADA Statement**

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. Alpine Students seeking accessibility/accommodations services must contact Mary Schwartz, LPC, SRSU's Accessibility Services Coordinator at 432-837-8203, or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu). Our office is located on the first floor of Ferguson Hall – room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

### **Library Information**

The Bryan Wildenthal Memorial Library and Archives of the Big Bend 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](http://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](mailto:srsulibrary@sulross.edu)), or phone (432-837-8123).

Additional information for students at Rio Grande College:

**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 additionally use online resources available through SWTJC website, [library.swtjc.edu](http://library.swtjc.edu). The SWTJC Libraries serve as pick-up locations for InterLibrary Loan (ILL) from the Alpine campus.**

### **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.

## 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.