



BIOL 3403 Plant Taxonomy Lab

Biology Program, Department of Life Sciences

Instructor information

Instructor: J. Rodolfo Valdez Barillas (Call me Dr. Valdez)

Office: Science & Technology Building 311L

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Office hours: Scheduled by e-mail appointment, to be conducted via WebEx or in person

Class meeting format: F2F Tuesdays and Thursdays **11:00 to 1:45 pm in CAB 310**

Course Description

The Plant Taxonomy lab is designed to complement your lecture learning experience. As part of the initial lab activities, you will practice your drawing skills by sketching different plant tissue and structures observed under the microscope or from preserved specimens. Besides becoming familiar with plant tissues or structures you will learn about different plant derived products used in our daily lives. As we progress through each lab we will review each plant group in their evolutionary order, starting with the more primitive and finishing with the most recently evolved taxa. We have one or two field trips within our campus property and outside the campus property.

During one of your lab activities, you will be introduced to iNaturalist, a tool designed to photograph and report plants and animals observed in the field. You will also be introduced to many online resources to practice plant and tissue photography, plant pressing and mounting, and plant collection databases from world class collections.

Course Objectives

1. Understand the mechanisms that explain the diversity of plants and how plants have adapted to different environments.
2. Understand differences among plants from a chemical, molecular, cellular, morphological, and ecological perspective.
3. Understand the links between plant uses, plant products and both the economic and ecological value of each group.
4. Read and evaluate original literature (including peer reviewed journals) to gain direct access to historical and modern developments in the field of Plant taxonomy and systematics.
5. Learn to appreciate plant diversity and the different roles that plants have played and could play in the life of humans.
6. Plan and execute a plant related project throughout the semester that will help enhance your understanding of plant diversity, morphology, function, and importance.



Recommended resources

Plant Systematics: A Phylogenetic Approach 4th Ed. By Judd/ Campbell/ Kellogg/ Stevens/ Donoghue ISBN 97816053533890

Plant Taxonomy: The Systematic Evaluation of Comparative Data. 2nd Ed. By Tod F Stuessy ISBN 9780231147125

Plants & society 8th Ed. By Estelle Levetin and Karen McMahon ISBN 9781259880049

Texas Range Plants by Stephan Hatch and Jennifer Pluhar ISBN 0890965382

North American Wildland Plants: A Field Guide by James Stubbendieck, Stephan Hatch, and L.M. Landholt

Trees of Texas Field guide Stan Tekiel ISBN 9781647552190

Guide to Texas Grasses by Robert B. Shaw ISBN 9781603441865

Rare Plants of Texas Jackie Poole, William Carr, Dana Price and Jason Singhurst ISBN 9781585445578

Course policies

Attendance: You are required to attend every class.

Participation: You are expected to have reviewed the course material for the week and material from previous lectures, so you come to class ready with questions. You are also expected to actively contribute during class activities, group project activities, and laboratory activities.

Communication: All communication and inquiries to the instructor should be e-mailed to jvaldezb@tamusa.edu. This e-mail is intended for communication only. No late assignments will be accepted via e-mail unless the instructor has granted an accommodation. All assignments are submitted via blackboard.

Course Changes: This course syllabus and lecture schedule is subject to change at any time; however, students will be notified via an e-mail message or during class should it change.



No Make up Exams are granted: Make up Exams are granted upon instructor's discretion and cannot be expected unless you have previously communicated your absence in written form or no later than 24hrs from your absence.

Late assignments: for each day passed the due date, 10% will be deducted over the total possible points.

Lab Evaluation

Course project:

- Students are expected to work on a group project dedicating about **15 hours** outside of lab time and class to during the semester. We will dedicate some course time to project planning, proposal development, and project presentation during last laboratory day.
- Students have 14 weeks to work on the project without including thanksgiving week and memorial weekend.
 - Groups should present a one page project proposal (see proposal guidelines)
 - Each group will have an allotted budget between \$200-\$400 for equipment and supplies. These may include plant growing supplies, equipment, seeds, plant from a nursery
 - Possible projects:
 - Vegetation composition and bird population along San Antonio River (Led by A&M-SA graduate student)
 - Pollinator-host plant interaction study (Led by A&M-SA graduate student)
 - Medicinal, edible plants, ornamental plant propagation and establishment at the A&M-SA community gardens (Led by Izzie Terrazas)
 - Native plant species and Interpretative gardens at A&M-SA
 - Native vs Invasive plant interactions and related insects (Led by graduate student)
 - Presentation: You will give a 20 minute group presentation and submit a written a final report of your project.
 - Project product should also be finalized the week before finals

Biology Plant Club: You are encourage to join the Biology plant club to stay engaged in plant related activities. As a member, you may get help and propose your project as an activity with club volunteer to participation.

- **Lab notebook & binder:** You will be required to bring a letter size lab notebook during every lab and a binder. In it you will mainly include relevant information on plant tissue characterization, images and drawings of important plant characters and note taking. **(Please read the instructions on how to use your lab note book and binder posted under course content on Blackboard)**

- **Examples**

- <http://www.walmart.com/ip/National-Brand-Heavyweight-Reinforced-11-x-8-1-2-Filler-Paper-100-Sheets/15079153> (any book like this one works but not smaller versions please)



- <https://www.walmart.com/ip/Pen-Gear-2-inch-view-3-ring-White-Economy-Binder-WM362-44W-TY/246922754>



- **Plant digital and physical collection:** You will form groups and will work on designing and building a plant digital and physical collection. Instructions will be provided during first week of class. The digital collection will be conducted using Power Point and iNaturalist. These will be graded the week before finals. However, entries on the notebook and binder will be checked expected every week.

GRADING (Number of quizzes and assignments may be adjusted based on student course load)

| Instruction | Assessment | Cumulative pts |
|-------------|---------------------|----------------|
| Lab | Laboratory notebook | 100 |
| | Plant collection | 20 |

Calculation of Final Grades

- The extra credit earned is added to the 540 total point when calculating your final grade over 100 points

A = 90 – 100 points

B = 80 – 89.9 points

C = 70 – 79.9 points

D = 60 – 69.9 points

F = <59.9 points

BIOL 3404-01L Plant Taxonomy Lab Schedule

| wk. | Date | Lecture Topic | |
|-----|--------------|---|--|
| 1 | 1/16/2024 | Lab 0 Introduction to Plant Tax Lab | Lab Safety Video and Forms are signed |
| 2 | 1/23/2024 | Lab 1 Botanical Nomenclature and Specimen Preparation | Computer activity |
| 3 | 1/30/2024 | Lab 2 Plant Tissue Morphology | Work with compound and dissecting microscope |
| 4 | 2/06/2024 | Lab 3 Plant Pressing and Herbarium specimens Plant Photography and !Naturalist | Bring smartphones and if available personal camera |
| 5 | 2/13/2024 | Lab 4 Ferns and Gymnosperms structures | Life plants and gymnosperm props |
| 6 | 2/20/2024 | Lab 5 Flowering Plant Structures | Work with compound and dissecting microscope |
| 7 | 2/27/2024 | Lab 6 Work on Project (No lab prep) | Student work in lab |
| 8 | 3/05/2024 | Lab 7 Liliales and Asparagales (Ornamentals) | Will use all props with plant derived products |
| | 3/11-16/2024 | Spring Break | |
| 9 | 3/19/2024 | Lab 8 Arecales and Poales (Palms and grasses) | Trip to back of campus, Need palm products from grocery |
| 10 | 3/26/2024 | Lab 9 Drought resistance, CAM and Wine | Trip to Botanical gardens |
| 11 | 4/02/2024 | Lab 10 Fabaceae and Cucurbitaceae and Malvaceae of Texas | Will observe and draw herbarium specimens, products from grocery |
| 12 | 4/09/2024 | Lab 11 Students work on Project outside of campus | Students work outside of lab |
| 13 | 4/16/2024 | Lab 12 Asterids, lamids and campanulids | Herbarium specimens and products from grocery and plant from rainbow nursery |
| 14 | 4/23/2024 | Final Project presentations | |

- **Lab Topics may be subject to change if more than one lab period is needed to complete the assignment.**
- **Field activity may or may not be conducted depending on weather.**



IMPORTANT POLICIES AND RESOURCES

Academic Accommodations for Persons with Disabilities: Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Support Services in the Central Academic Building, Suite 210, or at (210) 784-1335 or visit <https://www.tamusa.edu/index.html> or email us at dss@tamusa.edu. Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Support Services and their instructors as soon as possible.

Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu, calling (210) 784-1307, or visiting the Central Academic Building, room 202.

Counseling/Mental Health Resources: As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment call 210-784-1331 or visit Madla 120.

All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services.

Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2'). For more information and self-help resources, please visit www.tamusa.edu/studentcounseling

Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>.

More information about Emergency Operations Plan and the Emergency Action Plan can be found here: <https://www.tamusa.edu/about-us/campus-information/safety/university-police-department/documents/emergency-operations-plan.pdf> and <https://www.tamusa.edu/about-us/campus-information/safety/university-police-department/documents/emergency-action-plan.pdf>

Download the SafeZone App for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds



based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Writing, Language, and Digital Composing Center: The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. Tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. Students can schedule appointments through JagWire under the Student Services tab. Click on “Writing, Language, and Digital Composing Center” to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://bit.ly/WLDCCenter>.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (DOS@tamusa.edu) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots’ Casa in-person room 202, or to contact the Office of Military Affairs with any questions at military.va@tamusa.edu or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student’s GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as “F” grades and will impact the student’s GPA.



Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, gender expression, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to providing a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio's Title IX Coordinator can support those impacted by such conduct in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victim advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator (titleix@tamusa.edu, 210-784-2061, CAB 439K). If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

Pregnant/Parenting Students: Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from joining or cease participating in any course, activity, or program at the University. The university will provide reasonable accommodations to pregnant students that would be provided to a student with a temporary medical condition and that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status (titleix@tamusa.edu; 210-784-2061; CAB 439K).



Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide students with information regarding support services and other resources.

Students' Rights and Responsibilities: The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

Students' Rights

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

Students' Responsibilities

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, University Catalog and to comply with them, as well as federal, state, and local laws.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide an environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notification.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt,



which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the [Student Code of Conduct](#).

Use of Generative AI Permitted Under Some Circumstances or With Explicit Permission

There are situations and contexts within this course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content (text, video, audio, images) that will end up in any student work (assignments, activities, discussion responses, etc.) that is part of your evaluation in this course. Any student work submitted using AI tools should clearly indicate with attribution what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, students should reach out to their instructor for clarification before submitting work for grading. Use of AI-generated content without the instructor's permission and/or proper attribution in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

NOTE: Guidance for how to cite AI-generators, like ChatGPT, can be found here <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

Important Dates:

| | |
|-------------|---|
| January 16 | First day of class |
| March 11-17 | Spring Break – No classes |
| March 29 | Study Day – No classes |
| April 13 | Last day to drop with an automatic "W" |
| April 20 | Last day to drop a course or withdraw from the University |
| April 29 | Last day of classes |
| April 30 | Study Day – No classes |
| May 1-7 | Final exams |

The complete academic calendar is available online:

<https://www.tamusa.edu/academics/academic-calendar/index.html>