

BIOL 3534: Plant Systematics

Spring 2023 (4 credits)

Lecture: Bolin Hall, Room 209

Lab: Bolin Hall, Room 214

Instructor: Dr. Timothy J. Pegg, Assistant Professor, Department of Biology

Contact Information:

Office – Bolin 218D

Email – timothy.pegg@msutexas.edu

Office Hours: MWF 10:00am-12:00pm, or by appointment

Lecture Class Times: Monday, Wednesday, 8:00am-8:50am

Lab Times: Thursday, 1:00pm-4:50pm

Required Texts:

1. **Plant Systematics: A Phylogenetic Approach 4th Edition**
 - a. *Authors:* Walter S. Judd, Christopher S. Campbell, Elizabeth A. Kellogg, Peter F. Stevens, Michael J. Donoghue
 - b. *ISBN-13:* 978-1605353890

2. **Botany: Shinnery & Mahler's Illustrated Flora of North Central Texas**
 - a. *Authors:* George Diggs, Barney Lipscomb, Linny Heagy
 - b. *ISBN-13:* 978-1889878010

Optional Text:

1. **Plant Identification Terminology: An Illustrated Glossary**
 - a. *Authors:* James G Harris, Melinda Woolf Harris
 - b. *ISBN-13:* 978-0964022164

Course Description:

Lecture: Plant Systematics is the biological classification of plants. In this course we will learn to identify plants based on character states shared between different orders, families, genera and species of plants. Furthermore, we will study the diversity and evolutionary relationships between plant lineages with respect to their phylogeny.

Lab: This course contains a mandatory laboratory component. Participation in the laboratory section is necessary for you to practice plant identification and documentation in both classroom and field settings. If you miss a laboratory session for any reason, it is your responsibility to contact your lab instructor and arrange to complete assignments as soon as possible. If you miss three or more laboratory meetings for any unexcused reason you may be dropped from the course with a grade of F.

Course Objectives:

The successful student will:

1. Obtain foundational knowledge of plant biology and diversity
2. Demonstrate familiarity with the glossary of systematic botany
3. Successfully utilize their botanical knowledge and skills to identify flowering plants
4. Become familiar with ~50 plant families
5. Be able to correctly identify ≥ 100 plant species

Course Policies:

Excused Absences

Email me at least 24 hours before a planned event or absence. You will be responsible for the work and material we cover in class. Final Exams will not be excused unless an extraordinary circumstance has occurred.

Absences for Medical and/or Mental Health Reasons

Students should not attend class if they have a fever of 100.4°F or greater, are ill, or are experiencing multiple COVID-19 symptoms. In order for these absences to be excused, the student must contact the Student Wellness Center for evaluation.

If a student suffers from a chronic condition that leads to absence from class, he/she must have presented documentation to the MSU Disability Support Services (disabilityservices@msutexas.edu).

Absences Due to Co-Curricular Events or Religious Observances

Classes missed due to participation in college-sponsored co-curricular events or college-recognized religious observances are considered excused absences provided appropriate procedures are followed. The student must notify the instructor at the earliest possible time before the absence and arrange to make up missed work as defined by the instructor's syllabus

Unexcused Absences

If a student has an unexcused absence from class on the day of an exam or quiz normally a make-up will not be allowed; however, the instructor may make exceptions under extraordinary circumstances. There will be no make-ups for missed quizzes. **After 6 unexcused absences, you will be dropped from the course.**

Desire-to-Learn (D2L)

D2L will be used as a means of communicating, as a location where you can access resources (ex. PowerPoints) that are required or useful for success in the course, and where you will submit some required work products. You can log into D2L through the MSU Homepage. If you experience difficulties, please use links to technical help found in the D2L site.

Grading Policy

| | |
|----------------------------|-----------------------------|
| Lecture Exams | = 100 points/ea. (3 total) |
| Weekly Quizzes | = 10 points/ea. (100 total) |
| Final Exam | = 100 points |
| Lab Exercises & Quizzes | = 10 pts/ea. (120 total) |
| Lab Practical (Midterm) | = 100 points |
| Lab Practical (Final) | = 100 points |
| Plant Collection Specimens | = 10 pts/ea. (370 total) |
| MSU Herbarium Submission | = 10 pts./ea. (30 total) |
| Field Notebook | = 100 pts. |

| Grading Scale | | |
|---------------|---|---|
| 90 - 100% | = | A |
| 80 - 89.9% | = | B |
| 70 - 79.9% | = | C |
| 60 - 69.9% | = | D |
| 0 - 59.9% | = | F |

Total Possible = 1,320 points

Exams will cover materials from lectures and chapter readings. The Final Exam will be comprehensive over the entire semester.

Quizzes will be posted to D2L at the end of selected weeks and will be due before class on the subsequent Monday.

A field notebook will be maintained during the laboratory section. It will be reviewed weekly beginning March 23, 2023. This notebook will contain date, location, weather, descriptions and other information for each collected plant. A physical copy of the field notebook must be presented during the final week of lab for a final grade.

Lab exercises and quizzes will be conducted in lab by the instructor. Graded submissions may be presented as hard copies or online files through D2L at the instructor's discretion.

Lab practical will focus on applied, "hands-on" identification of plant characters, families, species and other relevant information covered in laboratory exercises and quizzes.

A total of 40 plant samples must be obtained by each student before the end of the laboratory section on **May 4, 2023**. Each sample must be correctly identified and prepared according to the requirements provided by the instructor. Three of these samples must possess sufficient quality for submission into the MSU herbarium.

A field notebook will be maintained during the laboratory section. It will be reviewed weekly beginning March 23, 2023. This notebook will contain date, location, weather, descriptions and other information for each collected plant. A physical copy of the field notebook (bound notebook) must be presented during the final week of lab for a final grade.

Late Assignments

Late assignments will not be accepted unless prior approval is obtained by the instructor, or extraordinary circumstances occur.

Extraordinary circumstances

In the case of extraordinary circumstances (documented medical emergency, natural disasters, etc.), the instructor reserves the right to resolve grading issues on an individual basis and in accordance with criteria stipulated in the most current MSU Student Handbook (2022-2023).

Electronics in Class

Cell phones, computers and other electronic devices must be turned off in class unless prior permission has been obtained by the instructor, they serve as an accommodation to an impairment or disability, and/or must stay on as a requirement for an occupation (EMT, other medical professional, etc.)

College Policies:

Campus Carry Rules/Policies

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry](#).

Active Shooter Information

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#). Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: "[Run. Hide. Fight.](#)"

Smoking/Tobacco Policy:

University policy strictly prohibits the use of tobacco products in any building owned or operated by Midwestern State University. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy:

Please refer to the (2022-2023 Student Handbook)

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State University are informed that strictly enforced policies are in place which prohibit the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state, and federal law for any offenses involving illicit drugs on university property or at University-sponsored activities.

Academic Dishonesty:

Dishonesty within the academic community is a very serious matter because dishonesty destroys the basic trust necessary for a healthy educational environment. Academic dishonesty is any treatment or representation of work as if one were fully responsible for it when it is in fact the work of another person. Academic dishonesty includes cheating, plagiarism, theft, or improper manipulation of laboratory or research data or theft of services. A substantiated case of academic dishonesty may result in disciplinary action, including a failing grade on the project, a failing grade in the course, removal from the course, and/or expulsion from Midwestern State University. Please reference the 2022-2023 Student Handbook for additional information.

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to the Office of Disability Support Services (disabilityservices@msutexas.edu, 1-940-397-4140).

Grade Appeal Process

To appeal a grade, consult the Midwestern State University 2022-2023 Student Handbook and visit the following checklists: the [Grade Appeal Checklist](#) provides the timeline for appealing from the instructor to the next in line (dean of the college). The [Academic Honesty Checklist](#) describes the timeline for appealing from the instructor to the next in line (chair of department) and who must be notified of academic honesty infractions.

Notice of Non-Discrimination:

Midwestern State University is an equal opportunity educator and employer that values diversity. In our educational, admissions and employment policies, scholarship and loan programs, and athletic and other activities, Midwestern State University does not discriminate on the basis of age, race, color, national or ethnic origin, disability, sex, gender identity, gender expression, sexual orientation, religious affiliation, veteran status, or any other protected status.

Student Expectations:

Students have responsibilities for achieving the course objectives. Learning is a process that requires skills and strategies, and you must actively develop those that work best for you. In this course the foundation of academic success includes:

- Attending class
- Reading the assigned material
- Asking your professor (Dr. Timothy Pegg) for assistance and clarification of topics when required

Tentative Lecture Schedule

| Week | Day | Date | Topic | Ch. Assignment |
|-----------|----------|-------------|---|----------------|
| 1 | M | 1/16 | Martin Luther King Day – No Class | --- |
| 1 | W | 1/18 | Syllabus & Intro to Sys Botany | Ch.1 |
| 2 | M | 1/23 | Introduction to Sys Botany | Ch.1 |
| 2 | W | 1/25 | Cell Structure, Growth and Division | Handouts |
| 3 | M | 1/30 | Plant Organs: Stems | Handouts |
| 3 | W | 2/01 | Plant Organs: Leaves | Handouts |
| 4 | M | 2/06 | Plant Organs: Roots | Handouts |
| 4 | W | 2/08 | Plant Organs: Flowers & Reproduction Strategies | Handouts |
| 5 | M | 2/13 | Exam #1 | --- |
| 5 | W | 2/15 | Evolution of Plant Diversity | Ch. 5 |
| 6 | M | 2/20 | Phylogenetic Classification | Ch. 2 |
| 6 | W | 2/22 | Phylogenetic Classification | Ch. 2 |
| 7 | M | 2/27 | Introduction to Classification & Nomenclature | Appendix 1 |
| 7 | W | 3/01 | History of Plant Classification | Ch. 3 |
| 8 | M | 3/06 | Green Plant Phylogeny | Ch. 6 |
| 8 | W | 3/08 | Non-flowering Tracheophytes | Ch. 7 |
| 9 | M | 3/13 | Spring Break – No Class | --- |
| 9 | W | 3/15 | Spring Break – No Class | --- |
| 10 | M | 3/20 | Exam #2 | --- |
| 10 | W | 3/22 | Angiosperm Phylogeny: Overview | Ch. 8 |
| 11 | M | 3/27 | Angiosperms | Ch. 8 |
| 11 | W | 3/29 | ANA Grade | Ch. 8 |
| 12 | M | 4/03 | Magnolioids | Ch. 8 |
| 12 | W | 4/05 | Easter Holiday – No Class | |
| 13 | M | 4/10 | Monocots: Basal Eudicots | Ch. 8 |
| 13 | W | 4/12 | Core Eudicots | Ch. 8 |
| 14 | M | 4/17 | Eurosids: Fabids | Ch. 8 |
| 14 | W | 4/19 | Exam #3 | --- |
| 15 | M | 4/24 | Eurosids: Malvids | Ch. 8 |
| 15 | W | 4/26 | Asterids: Gentianids | Ch. 8 |
| 16 | M | 5/1 | Gentianids: Lamiids, Campanulids | Ch. 8 |
| 16 | W | 5/3 | Final Exam Review Session | --- |

Final Exam = Wednesday, May 10, 8:00-10:00am

Tentative Lab Schedule

| Week | Date | Topic | Activity | Reference |
|-------------|-------------|--|--------------------------|---------------------|
| 1 | 1/19 | Introduction to the Lab, Safety | Ex. 1: Sci. Names | Lect. Appendix 1 |
| 2 | 1/26 | Vegetative Characters | Ex. 2: Classification | Lect. Ch. 4 |
| 3 | 2/02 | Floral Characters | Ex. 3: Nomenclature | Lect. Ch. 4 |
| 4 | 2/09 | Plant Descriptions & Records | Ex. 4: Describing Plants | Handout |
| 5 | 2/16 | Flowering Plants | Ex. 5: Flowering Plants | Handout |
| 6 | 2/23 | Microscopy | Ex. 6: Microscopes | Handout |
| 7 | 3/2 | Dichotomous Keys | Ex. 7: Keying Plants | Lect. Appendix 2 |
| 8 | 3/9 | Mid-term Lab Practical | N/A | --- |
| 9 | 3/16 | Spring Break – No Class | N/A | --- |
| 10 | 3/23 | Sight ID of Plants – Key Practice | Key Quiz #1 | Illstr. Flora NC TX |
| 11 | 3/30 | Sight ID of Plants – Key Practice | Key Quiz #2 | Illstr. Flora NC TX |
| 12 | 4/06 | Easter Holiday Break – No Class | Key Quiz #3 | Illstr. Flora NC TX |
| 13 | 4/13 | Sight ID of Plants – Key Practice | Key Quiz #4 | Illstr. Flora NC TX |
| 14 | 4/20 | Sight ID of Plants – Key Practice | Key Quiz #5 | Illstr. Flora NC TX |
| 15 | 4/27 | Sight ID of Plants – Key Practice | Key Quiz #6 | Illstr. Flora NC TX |
| 16 | 5/4 | Final Lab Practical | N/A | --- |

Due Date: Plant Collections & Field Notebook = Thursday, May 4, 1:00pm