PRINCIPLES OF BOTANY

Course Description: This course introduces students to the structure, function, diversity and application of plants. Features of both vascular and non-vascular plants, including life cycles, are explored. The anatomy of vegetative and reproductive organs of plants are studied. Physiological mechanisms and adaptations used by plants, including water relations, will be considered.

LEARNING OBJECTIVES

Upon successful completion of this course, the student will:
1. Describe plant cell structure and distinguishing features
2. Understand the role of biological macromolecules and be able to identify some important plant secondary metabolites
3. Understand and distinguish respiratory and photosynthetic energy transformations
4. Describe the anatomy of the plant body, including roots, stems, leaves, flowers, fruits and seeds
5. Recognize circadian rhythms and plant growth and response to external factors, including tropisms, photoperiodism, nastic movements and dormancy
6. Understand plant nutritional requirements and nutrient cycles
7. Explain historical accomplishments, and the importance of and challenges to agriculture for food, fuel and environment
8. Understand the mechanisms of plant reproduction and genetic variability
9. Describe issues and applications of recombinant DNA technology and biotechnology
10. Understand and categorize plant diversity, evolution and systematics including protists, bryophytes, seedless vascular plants, gymnosperms and angiosperms.

Major Course Requirements

Tentative Evaluation:
Your final grade will be based on the percentage you earn out of the total possible points. Individual extra credit is not possible, but extra points may be built into exams or other assignments. Statistical manipulations, if used (at the Instructor’s discretion), will be performed only once, at the end of the semester. A 10-point grading scale will be used:

A = 90 - 100 %
B = 80 - 89.9 %
C = 70 - 79.9 %
D = 60 - 69.9 %
F = 0 - 59.9 %
Components of Course Grade (Tentative)

**Lecture: 75%**
- 3 Exams @ 100 pts = 300
- Final Exam = 200
- Quizzes and Attendance = 100
- [Additional Assignments @ Instructor’s Discretion = up to 100]

**Laboratory: 25%**
- (reports, quizzes, assignments, presentations) = 200

**TOTAL** = 800

The time schedule may require adjustment. Should this be the case, the assignments and weighting may change slightly. Additional assignments may or may not be provided at the Instructor’s discretion. Such assignments might include homeworks, group projects, reading assignments, quizzes, etc. Regardless of any such changes, the lecture and laboratory weighting of your grade shall remain at 75% and 25%, respectively. For example, if you make 90% of total points available for the lecture and 80% of total points available for the laboratory portion, then your grade would be calculated as:

\[(0.9 \times 75) + (0.8 \times 25) = (67.5) + (20) = 87.5/100 \text{ possible} = B\]

An assignment will likely be due during the last week of class.

Every attempt will be made to follow the time and evaluation schedules shown here. It is the student’s duty to attend each class session and be aware of all assignments, deadlines, changes, etc.

**NOTE**: All Exams are the property of the Instructor as they must be saved for course records. Students may use the exams for study purposes during specified lab periods, but they must be saved and returned to the Instructor at the specified time in order for the final grade to be submitted. **DO NOT LEAVE THE ROOM WITH OR COPY THE EXAMS IN ANY MANNER (photocopying, photographing, scanning, etc)**!

**Exams** will be a mixture of multiple choice, matching, fill-in the blank, short answer, labeling, calculations and essay questions. Some will require analysis and interpretation of data or experimental design to assess critical thinking skills. Some questions will be derived from laboratory activities. The **Final Exam (Wednesday, May 9 from 8:00 - 10:30 AM)** will contain new material from the end of the semester.

**Quizzes** may be given at any time in class, and will usually be taken using the **required QWIZDOM Class Response “Clickers”**. There will be no makeup. **Homeworks and other assignments** may be given in class. The other assignments may include data interpretation, experimental design, calculations, opinion papers, research article summaries, etc. They will generally be due at the start of lecture class the following week. You are encouraged to get together and work on them as a group. However, unless specified otherwise, the assignments must be turned in individually and be written in your own words, NOT COPIED. An assignment grade of ZERO will be given if the work is not in your own words.

**Attendance at class is required, and will be monitored by either direct roll call or through the use of the Class Response “Clickers”.** You must bring a functional “Clicker” to class each day. If roll is taken by “Clicker” and you do not have yours, you will be counted as absent. Please do not ask for an exception. Each student will be given a 5-absence grace allowance before losing attendance points. If you use another (absent) student’s clicker, in addition to your own, in an attempt to count the absent student as present, you will be counted as absent yourself.
Required Readings


ISBN 0-7167-6205-6

You must obtain, bring and maintain the Quizdom Class Response “CLICKER”

BlackBoard: Course-associated site for posting notes, readings, labs, data, etc.

Course Listserv: All students must subscribe to the class listserv, using your official University-mandated email account (firstinitiallastname@islander.tamucc.edu). You may ask questions of interest to the instructor or other students on the class listserv, eg. clarification of an assignment, as well as receive important class announcements. You are encouraged to subscribe to the Opportunities Listserv as well.

To subscribe, send an e-mail to “Botany-list-request@sci.tamucc.edu”. Make sure that your e-mail address appears in the “From:” heading, and that the word “subscribe” is typed in the subject line. You will receive a subscription acknowledgement confirming that you have done everything correctly. To post messages to the listserv, send to “Botany-list@sci.tamucc.edu”. Because of security concerns, you should post messages from the official TAMUCC computer account (Islander) that is used to subscribe to the listserv. At the end of class, please send an e-mail to “Botany-list-request@sci.tamucc.edu” with “unsubscribe” in the subject heading. Please use this service to ask questions about class materials, dates, assignments, etc.

You should also subscribe to the Opportunities Listserv using the same procedure:“opportunities-list-request@sci.tamucc.edu”  This service provides notification of scholarships, research and volunteer opportunities and science-related job opportunities.

Recommended or Supplemental Reading: Supplemental readings will be posted on the Blackboard course site.

Text-Associated Website: The textbook has a free companion website with study-aids, animations & videos, essays, and links to additional materials: www.whfreeman.com/raven

List of Supplies
You must obtain, bring and maintain the Quizdom Class Response “CLICKER”

You will need a laboratory notebook, “sharpie”, calculator, laboratory coat, and safety glasses.

Course Policies
ALL E-MAIL COMMUNICATIONS WITH THE INSTRUCTOR OR LAB TA MUST BE MADE THROUGH YOUR OFFICIAL UNIVERSITY E-MAIL (@ISLANDER), BY UNIVERSITY RULE.
Attendance/tardiness, Late work and Make-up Exams You are expected to attend all classes and labs in a timely manner. Important new material, as well as schedule changes and quizzes may occur at any time. It is expected that you will take notes, ask/answer questions, and participate in group activities.

LATE WORK will not be accepted, except as below, or unless otherwise specified.
Attendance is the student’s responsibility. You are responsible for the material covered in every lecture, even if it is not in the book, regardless of your attendance. Nothing missed during an unexcused absence can be made up. An excused absence allows us to make alternative arrangements to complete an assignment. Only unavoidable absences are excused. Routine events (holiday travel, non-emergency medical visits, parent-teacher conferences, household or auto repairs) should be scheduled to avoid conflicts with class. An acceptable excuse must be:
• from an appropriate source (doctor, dentist, funeral director) stating the nature of the event
• In writing, on official letterhead, and signed (it will not be returned)
• presented prior to, or within 1 week of, the absence
• It must state the dates for which the excuse applies

There are No make-up examinations: For some scheduled events, you may arrange to take a lecture exam before, but not after, its scheduled time. Quizzes cannot be made-up.

Expectations:
You are responsible for your own education. Take notes in class as some new information may be presented. Lecture notes from the instructor, when made available, do not represent everything you need to know. Read the book and handouts for further detail not covered in class, and to be prepared for laboratory. If you don’t understand, then please ask, or see the instructor after class. Don’t allow yourself to fall behind. Be diligent and thorough on written assignments and examination answers. If you are not sure of an answer, at least try. For many people, putting anything down on paper clarifies their thinking and helps with recall. Also:
* Be aware of university-imposed deadlines (ie drop dates)
* Be aware of test times and dates, including changes which may be announced in class
* Check your exams for clerical errors. The test score is not the end of the learning process. Review tests to determine why you missed an answer. Correcting your mistakes is an effective way to learn material (reflective learning).
* Work on all assigned homework problems in a timely manner. Seek tutorial help from classmates or the course/laboratory Instructors.
* Keep track of your progress in class.
The following procedures will be enforced:
* All major exams are the property of the instructor and may not be removed from class, copied, reproduced or photographed in any way
* You must be prepared to present a photo ID at all examinations
* If you leave an examination room—for any reason—you must hand in your test and you will not be allowed to resume the examination. Attend to personal matters (e.g., rest room visits) before the examination.

Cell Phone/Electronic Device Usage Policy on Disruptive Behavior:
As adult university students, you are expected to act with courtesy and common sense. Disruptive, disrespectful, or abusive language/behave towards anyone in class (student, staff, faculty) will not be tolerated and could result in permanent removal from class. This includes tardiness to class, talking in class, insubordination, and electronic disturbances (cell phones, ipods, gameboys, etc). Turn it off. Hazardous materials are used in the laboratory so “play” or reckless behavior will not be allowed. Children are not allowed in class or lab.
Academic Integrity/Plagiarism.
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in appropriate action at the discretion of the instructor, including failure of the course. **Everything should be in your own words.**

Dropping a Class
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Learn the last day to drop a class with an automatic grade of “W” this term.

Preferred methods of scholarly citations  *(Format from J. Experimental Marine Biology and Ecology)*

Grade Appeals*
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Disabilities Accommodations*
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
# Tentative Syllabus
*(course schedule)*

<table>
<thead>
<tr>
<th>Wk1: Jan 11, 13</th>
<th>Introduction to plants and botany; overview of topics (Ch 1)</th>
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<tbody>
<tr>
<td>Wk 2: Jan 16</td>
<td>MLK Holiday</td>
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<tr>
<td>Jan 18, 20</td>
<td>Biological macromolecules &amp; plant secondary metabolites (Ch 2)</td>
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<td><strong>Lab:</strong> Introduction, paperwork, plant (slow) seeds, <strong>Lab Topic 1, Appendix F:</strong> Plant propagation video,</td>
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<td>Wk 3: Jan 23, 25, 27</td>
<td>Plant cell structure; Water movement in cells; Plant Tissues (Ch 3-4)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 2</strong> Microscopes; <strong>Lab Topic 4.1A</strong> Plant Cells</td>
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<td>Wk 4: Jan 30; Feb 1, 3</td>
<td>The plant body and seedling structure (Ch 22)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 3</strong> Vascular plant body</td>
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<td>Wk 5: Feb 6, 8, 10</td>
<td>Sexual reproduction (Ch 8); Diversity &amp; Systematics (Ch 12) <strong>EXAM I</strong></td>
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<td><strong>Lab:</strong> <strong>Meiosis, Herbarium visit, DNA sequence analyses</strong></td>
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<td>Wk 6: Feb 13, 15, 17</td>
<td>Algae &amp; heterotrophic protists (Ch 15)</td>
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<td><strong>Lab:</strong> <strong>Lab Topics 13 &amp; 14</strong> Red &amp; green algae</td>
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<td>Wk 7: Feb 20, 22, 24</td>
<td>Bryophytes (Ch 16); Seedless vascular plants (Ch 17)</td>
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<td><strong>Lab:</strong> <strong>Lab Topics 15 &amp; 16</strong> Bryophytes &amp; seedless vascular plants</td>
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<td>Wk 8: Feb 27, 29; Mar 2</td>
<td>Gymnosperms (Ch 18)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 17</strong> Gymnosperms</td>
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<td>Wk 9: Mar 5, 7, 9</td>
<td><strong>EXAM II:</strong> Introduction to Angiosperms (Ch 19)</td>
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<td><strong>Lab:</strong> <strong>Plant Sale !; Lab Topic 18</strong> Angiosperms (Flowers)</td>
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<td>Wk 10: Mar 12-16</td>
<td><strong>Spring Break</strong></td>
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<td>Wk 11: Mar 19, 21, 23</td>
<td>Evolution of angiosperms (Ch 20)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 19</strong> Angiosperms (Fruits)</td>
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<tr>
<td>Wk 12: Mar 26, 28, 30</td>
<td>Respiration; Photosynthesis (Ch 6-7)</td>
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<td><strong>Lab:</strong> <strong>Field Trip</strong></td>
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<td>Wk 13: Apr 2, 4, 6</td>
<td>Photosynthesis (Cont’d) (Ch 7)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 7</strong> Respiration; <strong>Lab Topic 8</strong> Photosynthesis I</td>
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<td>Wk 14: Apr 9, 11, 13</td>
<td>Plant growth and effects of external physical conditions (Ch 28)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 8</strong> Photosynthesis II</td>
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<td>Wk 15: Apr 16, 18, 20</td>
<td><strong>EXAM III,</strong> Soils and mineral nutrition (Ch 29)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 28</strong> Tropisms</td>
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<td>Wk 16: Apr 23, 25, 27</td>
<td>Plants and people (Ch 21)</td>
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<td><strong>Lab:</strong> <strong>Lab Topic 29</strong> Plant Nutrition</td>
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Wk 17: Apr 30; May 2  Recombinant DNA technology, biotechnology & genomics (Ch 10)

Wk 18: Wed May 9  FINAL EXAM  8:00-10:30 AM

Laboratory TA: Leah Rhyne

Office Location & Hrs: CS 240  HRS TBD