

LeTourneau University

BIOL 4204 Principles of Plant Biology

Course Syllabus

Objective: This course covers plant anatomy, plant physiology, and an in-depth survey of phyla traditionally studied as “plants”, including fungi and plant-like protists. The structure, development, and function of plant systems will then be explored through lectures, discussion and visual media, including hands-on laboratory experiences with living, fresh, or preserved materials. Plant anatomy subject matter will include plant-cell distinctives, cell and tissue types, early development, root and shoot anatomy and development, and secondary growth. Plant physiology subject matter will include photosynthesis, growth regulators, nutrition, and water relations. Plant diversity subject matter will include phyla of fungi, plant -like protists, bryophytes, seedless vascular plants, gymnosperms and angiosperms. Laboratory exercises will closely parallel these topics with descriptive and experimental experiences. A collection and identification of local flora is required. All of these topics will be explored from a Christian Theistic world view and students will be encouraged to pose questions and seek answers.

Instructor: Dr. A.G. Jarstfer (järst-für), Assistant Professor of Biology
Office: Glaske O141
Telephone: 903-233-3951; email: AmielJarstfer@letu.edu

Office Hours: **M F** 9:20 to 10: 15 a.m., **T** 12:25-1:20 p.m., **W** 1:30 – 2:30 p.m. **R** 3:00 – 4:00 p.m, **OR** by appointment

Periods: Lecture, **TR** 1:30 p.m. until 2:50 p.m.
Laboratory, **M**, 2:35 p.m. to 4:55 p.m.

Locations: Lecture: Glaske C106
Laboratory: Glaske S103

Required Texts: *Biology of Plants, 6th Ed.* Raven, Evert, and Eichhorn
W. H. Freeman and Co., New York 1999

Laboratory Topics in Botany
Evert and Eichhorn
W. H. Freeman and Co., New York 1999

Policies:

Lecture attendance is to your advantage and is required. Absence from more than 25% of the Lecture periods will result in a failing grade regardless of other grades. *Reading your assigned material before the lecture greatly increases your learning* as I will not necessarily lecture the chapters to you but will seek to emphasize the important material and supplement it with additional materials. Check you reading assignments.

Laboratory attendance is required and none of the labs may be made up. Absence from more than 25% of the Lecture periods will result in a failing grade regardless of other grades. In advance of any excused absence, you must arrange with the instructor a way to learn the material. Check you reading assignment list for the material of a specific lab.

Grading: The grades for the lecture and laboratory are combined.

Your grade will be based on the number of points earned from Exams, Lab quizzes, a Lab Practicum, a field trip report, and a plant collection. The Final Exam will be comprehensive. Exams will be a combination of multiple choice, matching and short answer. Some matching will include labeling of anatomical diagrams. Each exam will include extra credit questions from the same material.

1 Plant Collection = 150 pts
3 Unit Exams = 450 pts
1 Final Exam = 100 pts
7 Lab Quizzes = 140 pts
1 Lab Practicum = 100 pts
1 Field trip report = 100 pts

A = 91%; B = 81%; C = 71%; D = 60%; F = below 60%

Plant Collection

You are expected to collect and identify 50, non-endangered flowering plants for the purpose of learning to preserve field specimens and the process of placing each field specimen in a taxonomic group. These identifications are to be to the genus and species level! Each specimen must be dried in a press and mounted on heavy paper (which will be provided). Information on each specimen should be:

Date of collection:

County:

Collector:

Genus species (author of species):

This information should be located in the lower right-hand corner of the heavy paper.

Collections will be graded on correct identification, quality of preservation, and neatness of presentation. Each specimen is worth 3 pts and will become property of the Biology Department for use in future classes. Examples are available and the library has a significant collection of keys and guides for this purpose.

This Collection is due, May 1, 2003, at 3:00 p.m. sharp (the beginning of the Final Practicum). You will hand this in prior to taking the practicum. You will not take the practicum unless you hand in your collection.

Final Laboratory Practicum

Near during Final's Week you will be assessed on your knowledge of anatomy, physiology, and taxonomy of plants and plant-like organisms. This testing will include microscopic features of anatomy as well as macroscopic models and live or preserved specimens. The best way to prepare is to spend the necessary time in lab to draw/label detailed drawings of things observed. Usually the person that spends the most time in lab earns the highest grade on the practicum.

Laboratory Quizzes

On dates specified in the lab schedule, you will take a quiz on the previous week's concepts and details as well as on the reading for the current lab. Anatomical and taxonomic questions will also comprise a significant part of these quizzes.

Cheating on ANY assignment will result in zero points for that assignment.

Required Field Trip April 10 to April 14th, 2003

Thursday the 10th we will leave and drive to St Louis, Missouri and visit the Monsanto Research Center during business hours Friday April 11. Saturday April 12 will be spent at the Missouri Botanical Gardens. After a time of Worship on Sunday, we will again visit the Gardens and prepare to return to Longview on Monday the 14th. A report will be prepared by answering questions during the trip and keeping notes of observations. Expenses for this trip, except for personal spending money, are covered by your lab fee.