

 **Syllabus****Instructor: Professor Arthur C. Gibson**[Link to File](#) (Package File)

Botany 322; telephone 825-3620

email: agibson@biology.ucla.edu**Textbook:**

TBA; required readings and handouts will be distributed online and in class

**Course Requirements:**5 unit "tests," given during lab every second Thursday (**0.65 course grade**)

- Test will cover lecture and lab topics of the unit
- Test will include at least one essay derived from the lectures
- Test will include test of knowledge from lab observations
- Test will be longer than a quiz but should not take the entire lab period

Laboratory Exercises (one per unit), P/NP (**0.20 course grade**)

- One lab per unit will be held outdoors, when each student independently visits plants and fills in observations on sheets provided
- This exercise gets students to visit the plants, rather than dragging the plant into the laboratory
- A grade of Pass will be awarded if an effort was made to complete the exercise, realizing that some answers may be incomplete or incorrect
- Students may work in groups of 2 or 3
- Observations do not have to be completed during the laboratory session, but can be completed as homework
- Extra credit (+) may be awarded for thoroughness
- Laboratory exercise will be due by Friday at the completion of each unit; late assignments will receive a deduction (-)

"My Plant" project (due Friday of 9th week) (**0.15 course grade**)

- Each student will be assigned a particular plant species in the Botanical Garden or growing near the Botany Building (Week 2)
- The student will be expected to make a description of that plant, using a form to guide observations on vegetative and reproductive structures of that plant (0.6, A,B,C)
- Each student will be expected to do some library and online research on that genus and family, and from that write a brief introduction of no more than 4 double-spaced types pages (0.2; A,B,C)
- For the Final, each student will show the plant to the lab section and describe the plant on site (0.2, P/NP, 2 minutes maximum)

Course grades will be awarded based on these three graded elements.

**Unit 1. The Plant Body**

Seed structure and germination
Standard vegetative parts of a plant
Modes of growth
Architectural designs of shoots

Labs: Morphological variations in shoots and roots

**Unit 2. Growth Forms and Habits**

Factors limiting plant growth
Levitt's terminology of stress physiology
Structure-function relations of plants and plant biomechanics
Chemical and mechanical defenses
Modes of asexual reproduction

Labs: Plants in the world habitats



Unit 3. Major Taxa of Land Plants

General features of green plants

Endosymbiotic Theory of Chloroplast Origin

Plant life cycles: haplontic, diplontic, and diplobiontic with alternation of generations

Shared features of green algae and land plants

Significant algal adaptations for colonizing land and the origin of land plant life cycles

The earliest known land plants and diversification of plant forms

Labs: Major taxa of land plants; distinguishing features and diversity of non-flowering plants



Unit 4. Angiosperm Reproduction

The angiosperm flower and double fertilization

Pollination biology and natural selection

Fruits, seeds, and their dispersal

Some patterns in the evolutionary ecology of plants

Labs: Learning to recognize angiosperm features and families



Unit 5. Angiosperm Systematics

Basic concepts of classification and phylogenetic analysis

The origin of angiosperms and major taxa within angiosperms

Distinguishing features and synapomorphies of selected angiosperm lineages

Plant population biology and modes of speciation

Labs: Learning to recognize angiosperm families; "My Plant" projects

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