



BIOL 2305

Division: Natural Science and Mathematics

Department: Biology

Course: BIOL 2305

Title: Plant Taxonomy

Catalog Description:

The Laboratory portion of Plant Classification provides hands-on exercises that reinforces the major topics covered in the lecture portion of the General principles of taxonomy and use of manuals (Floras) with emphasis on the identification and classification of common families and genera of flowering plants and selected other vascular plants.

General Education Requirements: Life Science Lab

Semesters Offered: Fall

Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 3

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: None

Corequisites: BIOL 2300 (Plant Taxonomy Lecture)

Justification:

BIOL 2305 is designed to fulfill the Natural Science lab requirement for an Associate degree. BIOL 2305 is required/recommended for majors in Biology, Botany, Natural Resources (Forestry, Range Science and Wildlife Resources) and other plant sciences such as horticulture. Some students take this course as an elective because they are interested in nature and want to know more about the flowers and other plant life around them. It is particularly helpful for those in Elementary Education (SUU recommends this course for elementary teachers), and agricultural areas.

Student Learning Outcomes:

1. To learn the fundamentals of plant classification.
2. To become familiar with the common Flora of Utah.
3. To learn the distinctive traits and characteristics, ecologic and economic importance and phylogenetic relationships of selected angiosperm families, genera, and species.
4. To learn how to collect, identify, and press plant specimens.
5. To obtain these objectives, field collection trips are scheduled to collect and identify plant specimens.

Content:

This course will include: 1. The aims of Plant Taxonomy. 2. The construction and use of dichotomous keys for plant classification. 3. Concepts of Taxa. 4. The use of the Binomial Nomenclature. 5. Field and herbarium methods: collecting and pressing plant specimens. 6. Techniques in plant identification. 7. Phytography and Terminology: roots, stems, buds, leaves, color, and surface characters. 7. Flowers and flower variations. 8. Inflorescences. 9. Floral formulas. 10. Fruits and seeds. 11. Review of historical development of classification systems. 12. Angiosperm (Magnoliophyta) classification. 13. Selected monocot (Liliosida) families: - Alismaceae -Liliaceae -Iridaceae -Orchidaceae -Cyperaceae -Graminaceae 14. Selected dicot (Magnoliopsida) families: Group A, Thalamiflorae: -Magnoliaceae -Ranunculaceae -Malvaceae -Geraniaceae -Cruciferaeae - Polygonaceae -Chenopodiaceae -Cucurbitaceae -Cactaceae -Salicaceae -Fagaceae -Betulaceae -Jungladaceae - Aceraceae Group B: Carolliflorae: -Polemoniaceae -Solanaceae -Scrophulariaceae -Hydrophyllaceae - Boraginaceae -Labiatae Group C: Calyciflorae: -Rosaceae -Leguminaseae -Umbelliferae -Onagraceae - Group D: Ovariflorae: -Caprifoliaceae -Asteraceae (Compositae). 15. Field trips: one is a 2 days trip to the Mohave Desert in Southern Utah and Nevada; and another 2 days trip to the GBEEC research station. The rest of the trips will be one day trips to closer destinations. These field trips are essential in helping the students become familiar with the different plant communities and their composition and helping in collecting, pressing, and identifying the plants collected. 16. Plant Collection: Each student is required to make a plant collection of the Utah Flora. The purpose for making a plant collection is to help the student learn where different plants grow, and how to classify, collect, and preserve them. A herbarium label needs to be filled out for each specimen collected. The herbarium label requires this information: Family, Genus, Species, Common name, State, County, Locality, Ecology, Date, GPS data, Collector name, and number of specimen. Each plant turned in must be properly and neatly pressed and identified at least to Genus.

General Education Outcomes:

7) Apply scientific reasoning to a variety of contexts.

Students will gain an appreciation for plants and how we depend on these photoautotrophs (producers) in relation to us as heterotrophs (consumers). They will also understand this intricate plant-animal relationship. This will be assessed by the assignments.

Key Performance Indicators:

1. Regular attendance and participation in lab activities and the scheduled field trips are required for all students (10% of grade). 2. Daily quizzes (15% of grade), a mid-term (25% of grade) and a final exam (25% of grade) will be given for the lab. 3. A collection of plants, pressed, identified and classified are required as part of the grading (25% of the grade). These percentages are approximate.

Representative Text and/or Supplies:

1. Judd, et al., Plant Systematics-A Phylogenetic approach. Current edition. Sinauer Associates, Inc. Sunderland, Massachusetts. 2. Welsh, S.L., N.D. Atwood, S, Goodrich, and L.C. Higgins. Current edition. A Utah Flora. Brigham Young Univ., Provo, Utah.

Optimum Class Size: 15

Maximum Class Size:

BIOL 2305

Signatures:

I hereby submit this course syllabus:

Allan Stevens, , Professor

I hereby find this course consistent with the goals and resources of the Biology Department:

Allan Stevens, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)