

Northwest Arkansas Community College
Science and Math Division

BOTY 1614 Plant Biology

Catalog Description: Consideration of basic flowering plant structure, growth, development, physiology, genetics, and ecology. A brief survey of different plant groups will also be presented. GIS (Geographic information Science) incorporated to facilitate student learning of course content.

Pre-requisite: none, BIOL 1544 with a grade of “C” or better is strongly recommended

Credit/ Contact/ Load Hours: 4/6/5

Target Audience and Transfer: Students take botany for their own personal interest and information, for credit in the sciences, and for transfer to a four-year college to pursue further work or careers in agriculture, botany, horticulture, *etc.* U of A equivalent: BIOL 1613, 1613L

General Objectives: Students completing this course will be able to

- Describe the basic morphology, anatomy, physiology, taxonomy and ecology of plants, distinguishing between a monocot and dicot, between non-vascular and vascular plants.
- Identify at least 35 plants found in the Ozarks. Students will know the biome and different types of ecosystems of the Ozarks and how economic and cultural processes affect these systems.
- Explain the essential role plants play in harnessing energy, providing food for other species, providing oxygen for cellular respiration, providing medicine and useful plant products, as well as providing shelter, food, and habitat for other species as well.
- Recognize conservation issues and sustainable practices for maintaining the health of the biosphere.
- Develop their environmental consciousness and explore issues on their own.
- Identify careers which relate to natural science.
- Hike and observe natural systems for recreation and health.
- Use scientific thinking and process skills through laboratory activities and group interaction.
- Use traditional and electronic resources to locate information.

Topics:

- Overview of Botany (Chapter 1)
- Plant Cell and Chemistry (Chapters 2 - 3)
- Plant Morphology/Anatomy (Chapters 4 – 8)
- Water Relations (Chapter 9)
- Physiology- Photosynthesis and Respiration (Chapter 10)
- Plant Growth (Chapter 11)

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- Genetics and Evolution (Chapters 13 – 15)
- Taxonomy (Chapter 16)

Required Forms of Assessment:

- All students will be given a pre-test in botany with 25 general knowledge questions. At the end of the semester, students are given a post-test over the same material. Sharing this information with the student at the end of the semester helps to demonstrate competence.
- Evaluating general higher level thinking skills will be developed through activities such as: computer assignments and research papers include researching material using Internet sources and incorporating these ideas into a research assignment or paper; setting up experiments in lab involve evaluation of technique and procedure as well as results. One laboratory write-up is required during the semester.