LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore http://www.labette.edu/bookstore for the required texts for this class.

COURSE NUMBER: BIOL 124

COURSE TITLE: GENERAL BOTANY

SEMESTER CREDIT HOURS: 5

DEPARTMENT: Biology

DIVISION: General Education

PLACEMENT TEST LEVEL: General Education Course Placement

PREREQUISITE: None

COURSE DESCRIPTION:
A study of plant growth, physiology, morphology, reproduction, taxonomy, and evolution. This course is open to anyone interested; however, it is directed toward students with a biology concentration. Laboratory exercises accompany lectures.

COURSE OUTCOMES AND COMPETENCIES:
Students who successfully complete this course will be able to:

1. Analyze, comprehend, and interpret history and development of plant study and diversification of plants.

- Describe and define, identify contributions to development of botany and will understand major botanical disciplines.
- Learn, describe and define matter, acids, basses, salts and organic molecules.
- Describe the structure of cells and contrast plant cells with animal cells.
- Analyze tissues of plant body and describe roots, shoots (monocot and dicot) typical leaf structure.
- Identify and describe the parts of a typical flower.
- Learn, describe and define matter, acids, basses, salts and organic molecules.
- Define the five types of fleshy and dry fruits, adaptations of fruits and seeds and germination of seeds and dormancy.
- Write essays, assignments and lab reports to demonstrate his/her interpretation.

2. Analyze and understand, interpret the process of diffusion, osmosis, turgor, imbibition and active transport.

- Comprehend the pressure-flow hypothesis, cohesion-tension theory stoma opeus and closes and mineral requirements for growth.
- Describe photosynthesis and respiration.
- Explain glycolysis, Krebs cycle and electron transport chain respiration and fermentation.
- Comprehend and explain the types of plant hormones, photoperiodism, phytochrome and dormancy.
- Write essays, assignments, essays, and lab reports to demonstrate his/her interpretation of the above competencies.

3. Analyze and interpret plant genetics, plant biotechnology, propagation and evolution.

- Describe meiosis, mitosis, crossing-over and alternation of generations.
- Understand the Mendel's experiments, gene interations, chromosomal mapping and Hardy-Weinberg law.
- Know the functions of DNA, RNA and protein synthesis.
- Understand recombinant DNA and the enzymes related to its development.
- Know the several applications of Genetic Engineering, understand "Green Revolution:, explain tissue culture mericloning and vegetative propagation.
- Understand the introgressive hybridization; know the contributions of Charles Darwin, organic evolution mutation, and reproductive isolation to evolution and controversy over evolutionary theory.
- Write assignments from lecture and labs for his or her interpretation of the above competencies.

4. Analyze and interpret plant names and classification, kingdoms monera, viruses, protista-fungi, lichens bryophytes, vascular plants, gymnosperms and flowering plants.

- Comprehend binomial nomenclature, Whittaker's five-kingdom system and dichotomous key.
- Explain bacterial structure/function, disease transmittal, and the difference between Protista.
- Describe the kingdom fungi, their economic importance, understand the lichens and it's basic structure.
- Identify Broyphytes life cycle, liverworts, hornworts, mosses and uses of bryophytes by humans.
- Describe the vascular plants, lifecycles of Lycopodium, Equisetum, alternation of generation in ferns and fossils.
- Comprehend Gymnosperms, life cycle of pine tree, internal structure of pine trees and different conifers.
- Write assignments and essays to demonstrate his or her interpretation of various kingdoms.

5. Analyze and describe angiosperms and gymnosperms, flowering plants and civilization and ecology.

- Understand angiosperm and gymnosperms differences.
- Interpret characteristics of flowers, type of pollinators and specialization in the flowering plants.
- Know the functions of a herbarium and the technique of preparing herbarium specimens.
- Learn Vavilov's centers of distribution of cultivated plants.
- Know useful plants in Laurel, Rose, Legume, and Spurge families.
- Understand and interpret medicinal plants in the poppy and nightshade families.
- Construct original key to five flowering plant families.
- Comprehend the 10 ways in which humans have disrupted ecosystems.
- Understand the functions of producers, primary consumers, secondary consumers, decomposers and cycling of energy in an ecosystem.
- Describe nitrogen and carbon cycles, define succession, ecotype, secondary succession, eutrophication and climax vegetation.
- Learn major biomes of North America and principal living members of each.
- Write assignments and essays demonstrating his or her interpretation of specific concepts.

Student Learning Outcomes and Competencies for this course align with course outcomes developed through the Kansas Core Outcomes Project.