Number: BIOL G100  TITLE: Introduction To Biology

ORIGINATOR: Nikki Plaster

CROSS LISTED COURSE:

SEMESTER UNITS: 4.0
HRS LEC: 54.0  HRS LAB: 54.0  HRS OTHER: 0.0
CONTACT HRS TOTAL: 108.0
STUDY NON-CONTACT HRS RECOMMENDED: 108.0

CATALOG DESCRIPTION:
A survey course emphasizing basic concepts biology for non-science majors. Unifying concepts to be covered include: cell biology, animal and plant physiology, genetics and evolution, and plant, animal and human ecology.

JUSTIFICATION FOR COURSE:

PREREQUISITES:

COREQUISITES:

ADVISORIES:

ASSIGNED DISCIPLINES:

MATERIAL FEE: Yes [X] No [ ] Amount: $7.50

CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]

GRADING POLICY: Pass/No Pass [ ] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]

OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]

TRANSFER STATUS: CSU Transferable[ ] UC/CSU Transferable[X] Not Transferable[ ]

BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable

CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable

NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course

OCCUPATIONAL (SAM) CODE: E

REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:

REQUIRED FOR DEGREE OR CERTIFICATE: No [ ] Yes [X]
Elementary Teacher Education(Associate in Arts for Transfer)
Elementary Teacher Education(Associate in Arts for Transfer)
Geography(Associate in Arts for Transfer)
Liberal Arts: Emphasis in Science(Associate in Arts)
Liberal Studies for Elementary Education(Associate in Arts)
Psychology(Associate in Arts for Transfer)

GE AND TRANSFER REQUIREMENTS MET:

IGETC Area 5: Physical and Biological Sciences
  5B: Biological Science
    x
    x

CSU GE Area B: Scientific Inquiry and Quantitative Reasoning
B2 - Life Science
B3 - Laboratory Sciences

PROGRAM LEVEL LEARNING OUTCOME(S) Supported by this course:

demonstrate a strong factual framework of knowledge about the natural world.

COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:

1. Describe the core concepts and methods in the sciences, including cell theory, basic biochemistry, animal physiology and anatomy, microscopy, and the scientific method, as appropriate.
2. Connect theoretical concepts in biology with everyday applications and situations.
3. Gather, input and analyze data in a laboratory setting.
4. Interpret newsworthy biological reports according to long-standing biological principles.
5. Assess current biological issues such as stem cell and genetic research, medical cancers, ecological issues, the population question and the accelerating depletion of natural environments and resources.

COURSE OBJECTIVES:

1. Demonstrate a mastery of published course objectives by performing at acceptable levels on written and objective examinations.
2. Gather, analyze and input data in a laboratory setting.
3. Report orally and in writing, on the results of laboratory experiments.
4. Evaluate his or her current lifestyle in light of biological principles.
5. Interpret newsworthy biological reports according to long standing biological principles.
6. Assess current biological issues such as stem cell and genetic research, medical cancers, ecological issues, the population question and the accelerating depletion of natural environments and resources.

COURSE CONTENT:

LECTURE CONTENT:

A. Overview of biological sciences/properties of life/scientific methodology SKILLS: Introduction to study strategies, lab safety, introduction to measuring, data collection and presentation.
B. Molecules of life: water, organic molecules, inorganic molecules and ions. SKILLS: Use indicators, determine of pH of solutions.
C. Cells and tissues: structures, their functions and diversity. SKILLS: Introduce to magnification and bright field microscope study.
E. Enzymes: structure, function and response to environmental changes. SKILLS: Extract enzymes and detect substrate production.
F. Photosynthesis and cellular respiration. SKILLS: Use plants and yeast, inquiry-based experiments collect and analyze gas.
G. Comparative anatomy of animal organ systems: Cardiovascular. SKILLS: Use inquiry-based computerized data collection and analyze human heart rate.
H. Comparative anatomy of animal organ systems: Digestion and respiration. SKILLS: Use inquiry-based procedures to analyze human respiratory capacity.
I. Prokaryotes, protista, and fungi SKILLS: Assess microorganism specimens in air, water and soil using inquiry-based protocols and procedures.
J. Growth, reproduction, genetics and biotechnology. SKILLS: Extract DNA, investigate differences between meiosis and mitosis, observe and interpret human phenotypes.
K. Multicellular Producers--Plants. SKILLS: Investigate plant systematics and reproduction of
flowering plants.
L. Survey of the kingdom animalia: Movement, behavior patterns, introduction to the senses. SKILLS Investigate comparative anatomy and physiology of movement in animals.
M. Ecological principles. SKILLS: Assess and investigate population dynamics using a carrying capacity model.

LABORATORY CONTENT:
A. Overview of biological sciences/properties of life/scientific methodology SKILLS: Introduction to study strategies, lab safety, introduction to measuring, data collection and presentation.
B. Molecules of life: water, organic molecules, inorganic molecules and ions. SKILLS: Use indicators, determine of pH of solutions.
C. Cells and tissues: structures, their functions and diversity. SKILLS: Introduce to magnification and bright field microscope study.
E. Enzymes: structure, function and response to environmental changes. SKILLS: Extract enzymes and detect substrate production.
F. Photosynthesis and cellular respiration. SKILLS: Use plants and yeast, inquiry-based experiments collect and analyze gas.
G. Comparative anatomy of animal organ systems: Cardiovascular. SKILLS: Use inquiry-based computerized data collection and analyze human heart rate.
H. Comparative anatomy of animal organ systems: Digestion and respiration. SKILLS: Use inquiry-based procedures to analyze human respiratory capacity.
I. Prokaryotes, protista, and fungi SKILLS: Assess microorganism specimens in air, water and soil using inquiry-based protocols and procedures.
J. Growth, reproduction, genetics and biotechnology. SKILLS: Extract DNA, investigate differences between meiosis and mitosis, observe and interpret human phenotypes.
K. Multicellular Producers--Plants. SKILLS: Investigate plant systematics and reproduction of flowering plants.
L. Survey of the kingdom animalia: Movement, behavior patterns, introduction to the senses. SKILLS Investigate comparative anatomy and physiology of movement in animals.
M. Ecological principles. SKILLS: Assess and investigate population dynamics using a carrying capacity model.

METHODS OF INSTRUCTION:
A. Lecture:
B. Lab:
C. Video One Way – Audio Two Way:
D. Other simultaneous interactive:
E. Online:
F. Field Experience:
G. Independent Study:

INSTRUCTIONAL TECHNIQUES:
COURSE ASSIGNMENTS:
Out-of-class Assignments
Students may be required to present results of individual or group community off-site projects.

Writing Assignments
Students use laboratory skills to present hypotheses, solve problems, gather data, analyze data, and present conclusions and inferences based upon those data. Students may write laboratory reports and summarize field observations as well as present data to other students. Students will write essays, through homework and examination, that demonstrate proficiency in course objectives.

Reading Assignments
1. A current text in general biology for non-science majors (from a major publisher).
2. Laboratory manual in general biology

METHODS OF STUDENT EVALUATION:
Midterm Exam
Final Exam
Short Quizzes
Written Assignments
Essay Examinations
Objective Examinations
Report
Projects (ind/group)
Problem Solving Exercises
Oral Presentations
Skills Demonstration

Demonstration of Critical Thinking:
Students are required to analyze laboratory data. They may also solve problem sets. Scientific methodology, including detailed observation skills, formulation of general conceptual questions, proposal of hypotheses, data collection and interpretation, and criteria for accepting conclusions and answers are practiced in each laboratory unit.

Required Writing, Problem Solving, Skills Demonstration:
Students use laboratory skills to present hypotheses, solve problems, gather data, analyze data, and present conclusions and inferences based upon those data. Students may write laboratory reports and summarize field observations as well as present data to other students. Students will write essays, through homework and examination, that demonstrate proficiency in course objectives.

TEXTS, READINGS, AND RESOURCES:

TextBooks:

Other:
1. Laboratory Manual: BioExplorations, The Biology 100 Experience 2004
2. Examples of this might include:
   
   3-ring binder
   colored pencils
   3 x 5 cards

LIBRARY:
Adequate library resources include:

Comments:

Attachments:
[Attached Files]