

GEORGIA PERIMETER COLLEGE
DIVISION OF SCIENCE
COMMON COURSE OUTLINE
Revision date: November 2000

COURSE ABBREVIATION	Biol 1403
CREDIT HOURS	3 semester
COURSE TITLE	Diversity in the Living World
PREREQUISITES	Exit or exemption from Learning Support English, reading, and ESL requirements.
COREQUISITE	Biol 1403 L (1 sem. hr.)

CATALOG DESCRIPTION

This course introduces the student to the variety of living organisms, including animals, plants, fungi, protozoa, algae, and bacteria, and the biological principles that unite them. Attention is given to the evolution of these forms and their ecological interactions with each other and with humanity. This course is designed for non-science majors.

EXPECTED EDUCATIONAL RESULTS

As a result of completing this course, the student will be able to:

1. Describe the history of scientific study of biological diversity.
2. Explain the logical foundation of the theory of evolution by natural selection, cite examples of evidence for the theory, and explain how the process of natural selection produces change in populations.
3. List and define the characteristics of all living organisms, and apply these characteristics to animals, plants, fungi, protozoa, algae, bacteria, and viruses.
4. Name and describe the distinguishing features of each of the major kingdoms, and the major groups (phyla, divisions, classes) in each kingdom.
5. Describe the interactions among organisms and their environments at the population, community, and ecosystem levels of organization.

6. Characterize the major biomes in the world ecosystem, their contributions to human economic systems, and the importance of their conservation.
7. Describe economic, medical, and other uses or effects on humans of members of various major groups.

GENERAL EDUCATION OUTCOMES

1. This course addresses the general education outcome relating to communications as follows:

Students develop their reading comprehension skill by reading the text, handout materials, and published articles as assigned.

Students develop their listening skills through lecture, small group collaborative activities, and videos and/or guest lectures.

Students develop their reading and writing skills through the use of exercises that will require them to read and respond to ideas appropriately. Essay questions will be required on course exams.

2. This course addresses the general education outcome relating to usage of mathematical concepts and applies the scientific method as follows:

Students will apply quantitative information and algebraic concepts to living systems;

for example, to explain how surface area/volume ratios affect size, shape, and complexity of organisms.

Students will apply the scientific method as they learn to analyze data and determine the validity of conclusions supported by data.

3. This course addresses the general education outcome relating to identifying and evaluating global economic, political, historical, and geographical forces and analyzing how these forces shape the past, present, and future as follows:

This course examines how historical forces have affected the emergence of modern biological science, and how biology, in turn, has affected our understanding of ourselves as organisms and our place in the universe.

COURSE CONTENT (See Appendix):

1. Introduction.
 - A. Definition of life
 - B. The Scientific Method
 - C. Classification
2. The most familiar organisms: Vertebrates.
 - A. Mammals
 - B. Birds
 - C. Reptiles and amphibians
 - D. Fishes
3. Less familiar organisms: Plants
 - A. Flowering plants and conifers
 - B. Ferns and mosses
4. Making sense of diversity: Classification systems and evolution
 - A. Pre-Darwinian biology
 - B. Evolution by Natural Selection
 - C. Cladistics: defining monophyletic groups
5. Familiar invertebrates
 - A. Echinoderms
 - B. Arthropods: Insects, spiders, etc.
 - C. Segmented worms
 - D. Mollusks
6. New, small, and strange!
 - A. Pseudocoelomates } 1. Introduction to parasites
 - B. Flatworms } " " "
 - C. Cnidarians and sponges
 - D. Fungi
 - E. Protista
7. Putting it all together: Ecology.
 - A. Populations
 - B. Communities (food webs, etc.) & Ecosystems
 - C. Biomes, and humans' use of nature
8. The Prokaryotic Domains
 - A. Eubacteria
 - B. Archea

ASSESSMENT OF EXPECTED EDUCATIONAL RESULTS

1. COURSE GRADE

Course grade will be based on tests and quizzes, a final exam, and other assignments made by the instructor. The final exam should be comprehensive and include questions requiring critical thinking and written answers.

2. DEPARTMENTAL ASSESSMENT

Biol 1403 will be assessed by regular consultation between instructors and other members of the Transfer Biology Committee.

An assessment test will be administered to all students enrolled in Biol 1403 every five years. Portfolio assessment of students' writing on final exams may be included in the assessment process.

USE OF ASSESSMENT FINDINGS

Instructors will consult the assessment results and each other to determine which educational approaches are working well, and which could be improved. They will continue what works and explore improved approaches to instruction where that is needed.

EFFECTIVE DATE: November 2000

APPROVED DATE: November 2000

REVIEW DATE: April 2005

APPENDIX: COURSE CONTENT

The Transfer Biology Curriculum Committee asserts that certain information is of primary importance, and other information is less important.

PRIMARY IMPORTANCE:

1. Certain kinds of organisms (major groups) exist (or have existed).

These groups exhibit characteristic traits, characters, or attributes

How these organisms live
develop & grow
find and use energy (food)
feed, digest, or gather nutrients
maintain themselves (metabolism)
reproduce

Classifications reflect hypotheses of relationships
Scholars differ on what groups should be recognized and
how they are related

2. These organisms have histories & futures.

How populations, species, higher taxa arise & evolve.
Organisms are related by common ancestry
Relationships can be discovered by cladistics (phylogenetic analysis)
Classification should reflect evolutionary history (phylogeny)
Natural selection is the mechanism of evolution.

Populations interact (Ecology)

SECONDARY IMPORTANCE:

1. Taxon names and levels.

Needed to organize, and communicate primary info. above.
Each instructor should make clear which group names students must learn.