

Blinn College

Master Course Syllabus

Biology 1413 – General Zoology

CIP # 26.0701.5103

CIP Area: Life Sciences

Fall, 2005

Prepared by:

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Bryan Campus / Date

Confirmed by:

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Vice President Academic Affairs / Date

## **Biology 1413 General Zoology**

This course is in the core curriculum

### **Purpose Statement**

The purpose of the natural sciences component in the core curriculum is to enable the student to understand the basic concepts in the natural sciences and to apply that understanding to the analysis of current issues in society. Specifically, Biology 1413 is an introductory zoology course designed to provide students with an understanding of basic concepts in the life sciences with an emphasis on animals and their relationship with the environment.

### **Course Description**

Biology 1413 - General Zoology.

Study of the principles of taxonomy, molecular biology, and ecology as they relate to invertebrate and vertebrate animals form, function, diversity, behavior, and evolution.

Prerequisite: None. Three class hours and three laboratory hours per week. Credit: Four semester hours.

### **Expanded Course Description**

A. Major areas which will be covered in lecture are:

- 1) Introduction and History of Zoology
- 2) Molecular Biology
- 3) Ecology
- 4) Evolution
- 5) Systematics (Taxonomy)
- 6) Animal Diversity to include all major phyla from Porifera to Chordata
- 7) Vertebrate Structure and Function

B. Major areas which will be covered in laboratory are:

- 1) Microscopy
- 2) Ecology
- 3) Evolution
- 4) Survey of the Animal Phyla:
  - a) Sponges
  - b) Radiate Animals
    - Cnidaria
    - Ctenophora
  - c) Acoelomates
    - Platyhelminthes
    - Nemertea
  - d) Pseudocoelomates
    - Nematoda
    - Rotifera
  - e) Protostomes
    - Mollusca
    - Arthropoda

- Annelida
- f) Deuterostomes
  - Echinodermata
  - Chordata
- 5) Form and Function of the Animal Phyla

**Classroom Hours:** Three lecture hours and three laboratory hours per week.

**Credit Hours:** Four credit hours.

**Prerequisite:** Either a passing grade on the English portion of the THEA exam or successful completion of ENGL 0321, Preparation for College Composition.

**Core Course:** This is a Core Course in the 42-hour Core of Blinn College; more can be found at [www.blinn.edu/corecurriculum/](http://www.blinn.edu/corecurriculum/). As such, students will develop proficiency in the appropriate Intellectual Competencies, Exemplary Educational Objectives, and Perspectives as listed below.

A. Intellectual Competencies

- 1) **Reading:** The ability to analyze and interpret a variety of printed materials, books, documents and articles – above the 12<sup>th</sup> grade level.
- 2) **Writing:** The ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience - above the 12<sup>th</sup> grade level.
- 3) **Listening:** The ability to analyze and interpret various forms of spoken communication.
- 4) **Critical Thinking:** The ability to think and analyze at a critical level.
- 5) **Computer Literacy:** The ability to understand our technological society, use computer-based technology in communications, solving problems, acquiring information.

B. Exemplary Educational Objectives

- 1) Understand and apply appropriate technology to the study of natural sciences.
- 2) Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings and analyses and interpretation both orally and in writing.
- 3) Identify and recognize the differences among competing scientific theories.
- 4) Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
- 5) Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

C. Perspectives

- 1) Recognize the importance of maintaining health and wellness.
- 2) Develop a capacity to use knowledge of how science and the environment affect students' lives.
- 3) Develop personal values for ethical behavior
- 4) Use logical reasoning in problem solving.
- 5) Integrate knowledge and understand the interrelationships of the scholarly disciplines.

**Course Objectives and Student Learning Outcomes**

These learning outcomes and course objectives will include the student demonstrating

competence in following areas.

**Lecture Objectives:**

1. Differentiate between science and other fields of knowledge and learning.
2. Explain the role of evolution in the history of animal life on Earth.
3. Describe the mechanisms of evolutionary change.
4. Describe the classification of living animals.
5. Identify and characterize the major taxonomic categories.
6. Describe the structure and life processes of animals.
7. Describe the interactions of animals with their environment.

**Laboratory Objectives:**

1. Demonstrate familiarity with the fundamentals of laboratory safety.
2. Display an understanding of problem solving in science.
3. Use laboratory equipment in a correct manner.
4. Relate biological concepts to laboratory activities.

**Course Requirements**

Upon completion of the course, the student will have an overall average of  $\geq 60\%$  of the combined lecture and laboratory components of the course. This includes at least 3 major lecture exams and a comprehensive final examination. The student will demonstrate an understanding of the laboratory exercises through analysis of the data and the ability to use the data to solve problems. Laboratory examinations will be designed to address both knowledge and skills.

**Grading System**

The following areas will be clearly outlined by the instructor in the Course Information Sheet given to the students.

1. Major Exams: At least three major exams covering the lecture material, evenly distributed throughout the semester. Information from laboratory experiments may be included on major exams.
2. Laboratory Exams: At least two laboratory exams on knowledge and skills acquired through laboratory activities
3. Minor Exams/Quizzes/Homework: Given at the discretion of the instructor.
4. Additional Reports or Projects: Given at the discretion of the instructor.
5. Final Exam: Comprehensive exam covering the entire course-counting no less than 15% of the course grade.

**Outcomes Inventory**

Biology 1413 will be evaluated through the following methods:

1. A pre-test and post-test instrument to determine the extent of student improvement during the

semester.

2. Each Intellectual Competency listed above will be evaluated to measure its attainment:

**A. Reading:**

- 1) Pre- and Post- Test score or Exam or quiz over assigned textbook readings OR
- 2) Lab assignment or exam or quiz over lab book readings OR
- 3) Exam or written assignment over assigned journal articles.

**B. Writing:**

- 1) Written assignment or term paper OR
- 2) Essay question on exam.

**C. Listening:**

- 1) Exam or quiz over lecture material OR
- 2) Quiz over video viewed.

**D. Critical thinking:**

- 1) Lab assignment or exam involving problem solving.

**E. Computer literacy:**

- 1) Quiz over interactive assignments using internet and/or other computer activities.

## **Calendar**

The instructor will ensure that the course content is covered in a manner that fulfills the course objectives. The instructor will also provide Course Information Sheets to the students and the administration. Important details including tentative examination dates and due dates for assignments are provided.

### **Lecture Topic**

1. Introduction to the study of zoology
2. Ecology
3. Animal Evolution: Historical Perspective
4. Evolution and Population Genetics
5. Animal Classification

### **Laboratory Topic**

1. Microscopy
2. Ecology
3. Evolution
4. Taxonomy
5. Sponges and Radiate Phyla
6. Acoelomates and Pseudocoelomates

## **Materials:**

Required:

Lecture Materials:

*Zoology*, 6<sup>th</sup> edition, Miller and Harley: 2005. McGraw Hill, New York.

Laboratory Materials:

*Integrated Principles of Zoology*: 12<sup>th</sup> edition, 2004. Hickman, Hickman and

Kats. McGraw-Hill Higher Education.

Recommended:

*A Photographic Atlas for the Zoology Laboratory*, 3<sup>rd</sup> ed. 1996. K.M. Van De Graaf & J.L. Crowley.