JEFFERSON COLLEGE

COURSE SYLLABUS

BIO206

GENERAL ZOOLOGY

5 Credit Hours

Prepared by:
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Ms. Linda Abernathy, Division Chair, Math, Science & Business
Ms. Shirley Davenport, Dean, Arts & Science Education

BIO206 GENERAL ZOOLOGY

I. CATALOG DESCRIPTION

A. Prerequisites:
- High school biology and chemistry or equivalent (BIO101), with a grade of "C" or better within the previous five years of registration date
- Reading proficiency

B. 5 semester credit hours

C. General Zoology deals with animal cell structure and chemical processes, the structure and function of various organ systems, and an introduction to animal genetics, evolution, and ecology. Laboratory time is required and consists of classification and identification of representatives of the various animal phyla. (S)

D. Curricular alignment:
- Fulfills part of Natural Sciences (Biological Sciences) with lab CORE requirement for AA, AAT, AFA, and select AAS degrees: MOTR BIOL 150L Biology with Lab.
- Elective course applies toward AA or AAT degree.

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Expected Learning Outcomes	Assessment Measures
Identify cellular organelles and describe the function of each; students will diagram the structure of the cell membrane; students will differentiate between active and passive transport processes and osmosis and diffusion; students will predict the resulting changes to be exhibited in vertebrate cells placed in different tonic solutions	Classroom lecture, classroom discussion, exam, and laboratory activities
Compare and contrast mitosis and meiosis; students will recognize the different stages of cell cycle (mitosis and meiosis).	Classroom lecture, classroom discussion, and exam
Know Mendelian genetics and the relevant associated genetic terminologies; students will perform various genetics problems; students will differentiate between monohybrid and dihybrid crosses; students will differentiate between traits that follow Mendelian genetics with those that do not in animals	Classroom lecture, classroom discussion, homework assignments, exam, and laboratory activities

Distinguish between the various scientists, including but not limited to Darwin and Wallace, involved in the development of the Theory of Evolution; students will differentiate between the various causes of evolution; students will distinguish between the various types of evolution; students will identify the different types of speciation	Classroom lecture, classroom discussion, exam, and writing assignments from *Into the Jungle*
Identify representative species from Kingdom Protista; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Identify representative species from Kingdom Animalia, Phylum Porifera; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Identify representative species from Kingdom Animalia, Phylum Porifera; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Identify representative species from Kingdom Animalia, Phylum Cnidaria; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Platyhelminthes; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Mollusca; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Annelida; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams

Students will identify representative species from Kingdom Animalia, Aschelminthes; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Arthropoda; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Echinodermata; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will identify representative species from Kingdom Animalia, Phylum Chordata; students will distinguish between the various characteristics that define each taxonomic group discussed; students will examine natural and life histories for members of each taxonomic group	Classroom lecture, classroom discussion, laboratory activities, and laboratory exams
Students will demonstrate the ability to formulate hypotheses and carry out various experiments to test the hypotheses	Laboratory activities

III. COURSE OUTLINE

A. Cytology
   1. Cell theory
   2. Structure and function of animal cell organelles
   3. Cell membrane physiology
   4. Cell division

B. Genetics and heredity
   1. Gregor Mendel
   2. Monohybrid cross
   3. Test cross
   4. Independent assortment
   5. Dihybrid cross
   6. Incomplete dominance
   7. Codominance
   8. Multiple alleles
   9. Dominance modification
   10. Lethal alleles
   11. Epistasis

12. Chromosomes and sex determination
13. Sex linkage
14. X-inactivation
15. Sex ratio
16. Sex pre-selection
17. Sex influenced genes

C. Evolution
1. Definitions
2. Spontaneous generation
3. Special creation
4. Inheritance of acquired characteristics
5. Charles Darwin
6. Alfred Russel Wallace
7. Evidence of evolution
8. Phylogeny
9. Causes of evolution
10. Speciation
11. Evolutionary rates

D. Kingdom protista
1. Characteristics
2. Super group Excavata; subgroup Fornicata
3. Super group Excavata; subgroup Parabasalia
4. Super group Excavata; subgroup Euglenozoa
5. Super group Amoebozoa; subgroup Tubulinea
6. Super group Amoebozoa; subgroup Acanthamoebida
7. Super group Amoebozoa; subgroup Entamoebida
8. Super group Rhizaria; subgroup Foramenifera
9. Super group Chromalveolata; subgroup Alveolata

E. Kingdom Animalia; phylum Porifera
1. Characteristics
2. Representative examples

F. Kingdom Animalia; phylum Cnidaria
1. Characteristics
2. Class Hydrozoa
3. Class Scyphozoa
4. Class Anthozoa

G. Kingdom Animalia; phylum Ctenophora
1. Characteristics
2. Representative examples

H. Kingdom Animalia; phylum Platyhelminthes
   1. Characteristics
   2. Class Turbellaria
   3. Class Trematoda
   4. Class Cestoidea

I. Kingdom Animalia; phylum Mollusca
   1. Characteristics
   2. Class Gastropoda
   3. Class Bivalvia
   4. Class Cephalopoda
   5. Class Polyplacophora
   6. Class Scaphopoda

J. Kingdom Animalia; phylum Annelida
   1. Characteristics
   2. Class Polychaeta
   3. Class Clitellata

K. Kingdom Animalia; phylum Rotifera
   1. Characteristics
   2. Representative examples

L. Kingdom Animalia; phylum Nematoda
   1. Characteristics
   2. Representative examples

M. Kingdom Animalia; phylum Nematomorpha
   1. Characteristics
   2. Representative examples

N. Kingdom Animalia; phylum Arthropoda
   1. Characteristics
   2. Subphylum Trilobitomorpha
   3. Subphylum Chelicerata
   4. Subphylum Crustacea
   5. Subphylum Myriapoda
   6. Subphylum Hexapoda

O. Kingdom Animalia; phylum Echinodermata
   1. Characteristics
   2. Class Asteroidea
   3. Class Ophiuroidea
   4. Class Echinoidea
   5. Class Holothuroidea

P. Kingdom Animalia; phylum Chordata
   1. Characteristics
   2. Infraphylum Hyperotreti
   3. Infraphylum Vertebrata
   4. Class Amphibia
   5. Class Reptilia
   6. Class Aves
   7. Class Mammalia

IV. METHODS OF INSTRUCTION

A. Lecture

B. PowerPoint presentations

C. Textbook assignments

D. Class discussions

E. Laboratory exercises

F. Field trips to Riverlands Ecological Demonstration Area, Valleyview Glade, and Victoria Glade

G. DVDs

V. REQUIRED TEXTBOOKS

A. Miller, S. A., & Harley, J. P. *Zoology* (current edition). Dubuque, IA: McGraw- Hill.

B. Carroll, S. B., & Olds, L. M. *Into the jungle: great adventures in the search for evolution*. San Francisco: Pearson Benjamin Cummings.

C. Tekiela, S. *Birds of Missouri: field guide*. Cambridge, MN: Adventure Publications.

D. Johnson, T. R. *The amphibians and reptiles of Missouri* (Rev. and expanded 2nd ed.). Jefferson City, MO (P.O. Box 180, Jefferson City 62102-0180): Missouri Dept. of Conservation.

VI. REQUIRED MATERIALS

No materials required

VII. SUPPLEMENTAL REFERENCES

No supplemental references required

VIII. METHODS OF EVALUATION

A. Distribution of final grade

Students are evaluated by five hourly exams, a comprehensive final exam, laboratory exercises, four laboratory exams, 10 writing assignments from *Into the Jungle* and one day-long, required field trip.

B. Assignment of final letter

grades 90-100% = A
80-89% = B
70-79% = C
60-69% = D
Below 60% = F

C. Attendance policy

Student attendance is mandatory. There are no excused absences. If a student misses more than 15% of the total time (including lecture and laboratory) that the class meets in a semester, the student may be prohibited from attending the class by the instructor. In such cases, the student must officially withdraw from the course, by the designated withdrawal date, in order to reduce the possibility of receiving an "F" for the course.

No make-up exams are given, however students are allowed to drop their lowest grade on one of the hourly tests or laboratory exams so if they are absent on a test day, the missed test is automatically dropped. Students arriving more than 10 minutes late will not be allowed to take the test and that test grade will be dropped. Any additional missed tests/late arrivals will result in a grade of zero and the test grade will not be dropped.

Students arriving late to lab will not be allowed to participate in the laboratory activity and will receive a grade of zero. Students that leave lab before the successful completion of the lab will also receive a grade of zero. Laboratory exercises cannot be made up.

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, http://www.jeffco.edu).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.