

**MIAMI DADE COLLEGE
SCHOOL OF EDUCATION
COURSE SYLLABUS**

SURVEY OF ANIMAL DIVERSITY

This syllabus, course calendar, and other attending documents are subject to change during the semester in the event of extenuating circumstances.

Course Prefix & Number: ZOO 3021
Credit Hours: Three (3)
Prerequisites: None
Corequisite: ZOO 3021L
Date & Time: TBA
Professor Information: TBA

I. COURSE DESCRIPTION

This course presents zoology as a scientific discipline, the basic principles of zoological nomenclature, taxonomy, systematics, and the basic understanding of the relationships of animals to one another, to humans, their environment and to society. Prerequisites: none; corequisite: ZOO 3021

II. COURSE OBJECTIVES

Competency 1: The student will discuss the nature of zoology and understand the fundamental components of the scientific process by:

- 1.1 explaining the scientific process as a method of inquiry in zoology.
- 1.2 describing the function of each of the steps of the scientific process.
- 1.3 determining the way in which the scientific process is used to solve problems and answer questions in zoology.
- 1.4 identifying key individuals and events in the study of zoology over history and across cultures.

Competency 2: The student will demonstrate knowledge of the principles of animal nomenclature and terminology by:

- 2.1 discussing the development and nature of the current system of zoological nomenclature.
- 2.2 explaining the process, procedures, and purpose of the scientific classification of animals.
- 2.3 describing the principal theories of taxonomy.
- 2.4 differentiating the various concepts of the species.

Competency 3: The student will demonstrate knowledge of structural, physiological, and molecular similarities of organisms used to classify them into taxa by:

- 3.1 discussing the modern view of the evolutionary relationships of the major divisions of life.

- 3.2 differentiating between the many prevailing hypotheses of the origin of animal life on Earth.
- 3.3 defining and differentiating between homology, analogy, cladistics, phylogeny and ontogeny.

Competency 4: The student will demonstrate knowledge of representative organisms in each major phylum in the currently accepted 6-kingdom system by:

- 4.1 explaining the makeup of the major divisions of life.
- 4.2 differentiating the major subdivisions of the animal kingdom.
- 4.3 describing the features used to define the various animal body plans.

Competency 5: The student will demonstrate knowledge of the relationship of structure and function in living things by:

- 5.1 discussing the makeup and significance of the major animal kingdoms.
- 5.2 Defining the steps involved in the evolution of multicellularity.
- 5.3 explaining the major features and categories used to differentiate the members of each group.
- 5.4 discussing the nature and significance of the transition to various types of body forms and shapes.

Competency 6: The student will demonstrate knowledge of characteristics of animal cells and functions of structures within the cell by:

- 6.1 explaining the roles and functions of each component of the animal cell.
- 6.2 differentiating between animal and plant cells.

Competency 7: The student will demonstrate knowledge of unique features and characteristics of the major invertebrate groups by:

- 7.1. differentiating the types of body symmetry seen among invertebrates.
- 7.2. explaining the principal similarities and distinctions between the Radiata and Bilateria, protostomes and deuterostomes, acoelomates, pseudocoelomates, and eucoelomates.
- 7.3. discussing the major biological features and characteristics of the various members of the invertebrates.
- 7.4. explaining the evolutionary and ecological relationships between the various invertebrate groups.

Competency 8: The student will demonstrate knowledge of the many characteristics of major vertebrate animal groups by:

- 8.1 describing the similarities and differences between the members of the chordate subphyla Urochordata, Cephalochordata, and Vertebrata.
- 8.2 discussing the unique features and evolutionary relationships between each chordate group.

Competency 9: The student will demonstrate knowledge of biological basis of behavior and the role of stimulus by:

- 9.1 explaining the various mechanisms influencing animal behavior.

- 9.2 differentiating between internal and external cues.
- 9.3 discussing the many ways in which animals receive and respond to stimuli.

Competency 10: The student will demonstrate knowledge of the processes of animal growth and development by:

- 10.1 defining and differentiating between asexual and sexual modes of reproduction.
- 10.2 explaining the advantages and disadvantages of sexual and asexual reproduction.
- 10.3 defining and differentiating between vertebrate and invertebrate reproduction.
- 10.4 explaining the role of endocrine system in gametogenesis, fertilization and embryonic development.

Competency 11: The student will be able to discuss the roles and relationships between animals and their environment by:

- 11.1 defining and differentiating between animal populations and communities,
- 11.2 comparing and contrasting biotic and abiotic components that influence animal interactions.
- 11.3 explaining the roles of animals in food webs, food pyramids, energy cycles, niches and biogeochemical cycling of nutrients.

Competency 12: The student will be able to discuss and demonstrate an understanding of the interconnections between animals, humans, society, and technology by:

- 12.1 determining the relevance of animals, their ecology and habitats to human activities.
- 12.2 explaining the importance of interactions and interconnections between animals, humans and society.
- 12.3 summarizing the impacts of human population, technology and related activities to the biology and ecology of the various animal groups.

III. REQUIRED TEXTBOOK(S), RESOURCES AND MATERIALS

Integrated Principles of Zoology (2006) by Hickman et al. 13th Edition, McGraw Hill Higher Education.- ISBN 0-07-283056-5

IV. SUPPLEMENTARY READING AND REFERENCES

Placed on reserve at the reserve desk of the campus library:

- Readings and references materials
 - 1. Comparative Anatomy, Function and Evolution by Kardong, 4th edition
 - 2. Vertebrate Biology by Linzey, 1st edition
 - 3. Zoology by Miller and Harley, 6th edition
 - 4. Invertebrates by Brusca and Brusca, 2nd edition
 - 5. Invertebrate Zoology by Ruppert and Barnes, 6th edition

V. TECHNOLOGY/AUDIO/VIDEO

Placed on reserve at the reserve desk of the campus library:

- Audio/video materials
- Software

VI. SUPPLIES

Required and optional supplies will be announced during first week class.

VII. METHODS OF INSTRUCTION

Instruction and student interaction may include but not be limited to: lecture, group projects, class discussion, collaborative and cooperative learning, case studies, role-playing, simulations, problem-based learning, optional fieldtrips, hands-on activities, student presentations, and the use of technology.

VIII. COURSE REQUIREMENTS AND EXPECTATIONS

A. ATTENDANCE AND WITHDRAWAL POLICY

Students are expected to attend every class. The instructor will keep a record of class attendance. It is the student's responsibility to notify the instructor in advance of, or immediately following, any unplanned absence. It is the instructor's prerogative to withdraw students with more than three unexcused absences.

B. ASSIGNMENTS

a. Written assignments (15%) – Instructors may choose from, but are not limited to the following written assignments:

1. **Broadcast Media Report –**

- Watch a TV show or listen to a radio broadcast of a program with zoology-related content.
- Complete an analysis of the program and relate it to specific course objectives.

2. **Video study creation-**

- Create a 20 question study guide for an zoologically-related videotape in the campus Computer Courtyard, Campus Library or Public Library.
- Create an answer key for the questions.

3. **Electronic presentation-**

- Research about a unique feature/ structure of a particular group of animals that is used by humans.
- Prepare a concise, professional and informative classroom presentation using Power Point that deals with the harvesting and utilization of the animal.

4. **Field trips-**

- Participate in a field trip to a state park, sea aquarium or zoo and learn about the various creatures found therein.
- Prepare a summary report with pictures about the organisms and exhibits seen.

5. Poster

- Create a poster showing your knowledge of the Animal Kingdom.
- Be sure to include illustrations and explanations on your poster to show that you understand the major groups and how they are related.
- Be prepared to present your poster to the class.
- The poster will be graded based on a scoring rubric that will be distributed in class before you begin the assignment.

b. Oral Presentation (15%)

Create and deliver a 15-20 minute oral presentation related to a mutually agreed upon Zoological topic. Your presentation must contain at least 5 scientific facts related to your topic and should use available classroom technology. Presentation details and a grading rubric will be provided to you.

C. GRADES

Your final grade will be based on the following information:

1. Five quizzes/exams (50%)
2. One comprehensive final exam (FEAP Task 8e) (20%)
3. Written Assignments (15%)
4. Oral Presentation (15%)

D. GRADING SCALE

- A: 90-100
B: 80-89
C: 70-79 (minimum passing score)
D: 60-69 (must repeat course)
F: 0-59 (must repeat course)

A grade of I (incomplete) can be assigned only under the following conditions.

1. The student requests the grade of incomplete.
2. The student has completed all exams up to that time with the possible exception of the last unit exam and/or final exam.
3. The student has completed all assignments up to that time.
4. The student has at least a C average up to that time.
5. The circumstances that prevent the student from completing the course by the end of the term must be extenuating and documentable.
6. The student must agree to make up the missing work by the date specified by the instructor or by the end of the next major term, whichever is earlier. This agreement must be formalized by completing the College's *Agreement for a Grade of Incomplete* form.

IX. ALTERNATE INSTRUCTION/LEARNING SUPPORT CENTERS

Students who need help completing assignments or with work in-class are encouraged to seek help at the support centers on their campus.

X. AMERICANS WITH DISABILITY ACT (ADA) STATEMENT:

Students who have a disability that might affect their performance in this class are encouraged to contact Access Services, in confidence, as soon as possible.

XI. ACADEMIC INTEGRITY

The instructor supports the College's policies regarding academic integrity and honesty. These include the policies regarding cheating, plagiarism, and fabrication of information. It is **your** responsibility to understand fully what these policies are. As such, you are encouraged to obtain a copy of the *Student Rights and Responsibilities Handbook* and read these policies carefully and thoroughly.

- A. **Cheating** – Cheating is defined as the improper taking or tendering of any information or material which shall be used to determine academic credit. Taking of information includes, but is not limited to, copying graded homework assignments from another student; working together with another individual(s) on a take-home test or homework when not specifically permitted by the instructor; looking or attempting to look at another student's paper during an examination and; looking or attempting to look at text or notes during an examination when not permitted. Tendering of information includes, but is not limited to, giving your work to another student to be used or copied; giving someone answers to exam questions either when the exam is being given or after having taken an exam; giving or selling a term paper or other written materials to another student; sharing information on a graded assignment.
- B. **Plagiarism** – Plagiarism is defined as the attempt to represent the work of another as the product of one's own thought, whether the other's work is published or unpublished, or simply the work of a fellow student. Plagiarism includes, but is not limited to, quoting oral or written materials without citation on an exam, term paper, homework, or other written materials or oral presentations for an academic requirement; submitting a paper which was purchased from a term paper service as your own work; submitting anyone else's paper as your own work.
- C. **Copyright law** – Violation of copyright law is defined as the attempt to represent the work of another as the product of one's own thought, whether the other's work is written or found on the Internet or simply the work of a fellow student, violates the copyright laws. It is not limited to quoting oral or written materials, it includes photographs, clipart and music samples. For an academic requirement; submitting a paper, image, and/or music which was copied from website as your own work; submitting anyone else's paper as your own work is considered a breach of copyright laws unless they fall into the guidelines of the Teach Act <http://www.lib.ncsu.edu/scc/legislative/teachkit/>

All class notes, lecture outlines, class assignments, examinations, and any other course information are copyrighted intellectual materials and may not be copied or distributed in any format or for any purpose without permission from the instructor or the author as the case may be.

XII. MAJOR COURSE COMPETENCIES AND STANDARDS

MAJOR COURSE COMPETENCIES/OBJECTIVES	NSTA Secondary teachers STANDARDS	SUBJECT MATTER STANDARDS	STATE COMPETENCIES & SKILLS
Upon successful completion of this course, the student will demonstrate knowledge of...			
1. ... and discuss the nature of science and understand the fundamental components of the scientific process.	C2a11, C2a19, C2a20	1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.6, 3.7, 4.3, 4.4	1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.18
2. ... the principles of animal nomenclature.	C2a3	6.1, 6.2, 6.4, 6.5, 6.6	1.2, 1.8, 5.4, 7.1, 7.2
3. ...structural, physiological, and molecular similarities of organisms used to classify them into taxa.	C2a1, C2a2, C2a3, C2a16	6.1, 6.2, 8.22	5.5, 5.8, 7.25, 7.26, 9.8
4. ...representative organisms in each major phyla in the currently accepted 6-kingdom system.	C2a2, C2a3, C2a4	6.6, 6.11, 7.2	5.8
5. ...the relationship of structure and function in living things.	C.1.5, C2a2, C2a10, C2a13	6.12	7.26
6. ...characteristics of animal cells and functions of structures within the cell.	C2a8	7.1, 7.5, 7.7, 7.8, 7.12, 7.14, 12.1-12.3	5.1, 5.2
7 ...unique features and characteristics of invertebrates..	C2a2		
8. ...unique characteristics of each major group of chordates.	C2a2	8.16, 8.17	7.29
9. ...biological basis of behavior and the role of stimulus.	C2a9	8.22, 8.23, 8.24, 8.25	7.30, 7.31
10. ... the processes of animal growth and development.	C2a8, C2a1		7.27, 7.28
11. ...relationship between animals and their environment....	C2a5, C2a6, C2a9		
12. ...interconnections between animals, man, society and technology	C2a12, C2a18, C2a21		

XIII. COURSE CALENDAR

Week 1	Biological Science, Zoology, Biodiversity, and the Scientific Process	○ Competency = 1
Week 2	The Principles of Animal Nomenclature, taxonomy, anatomy and physiology	○ Competency = 2
Week 3	Animal Cells, Structures and body plans	○ Competency = 4, 5, 6
Week 4	Porifera and Cnidarians	○ Competency = 2, 3, 4, 5, 7
Week 5	Platyhelminthes and Nematodes	○ Competency = 2, 3, 4, 5, 7
Week 6	Mollusks and Annelids	○ Competency = 2, 3, 4, 5, 7
Week 7	Echinoderms and Arthropods	○ Competency = 2, 3, 4, 5, 7
Week 8	Urochordates and Cephalochordates	○ Competency = 2, 3, 4, 5, 8
Week 9	Chordate Diversity	○ Competency = 2, 3, 4, 5, 8
Week 10	Fishes and Sharks	○ Competency = 2, 3, 4, 5, 8
Week 11	Amphibians and Reptiles	○ Competency = 2, 3, 4, 5, 8
Week 12	Birds and Mammals	○ Competency = 2, 3, 4, 5, 8
Week 13	Behavior, Growth, and Development	○ Competency = 2, 3, 5, 7, 8, 9, 10
Week 14	Interconnections with MAN and Society	○ Competency = 2, 3, 4, 5, 7, 8, 11, 12
Week 15	Presentations	
Week 16	Presentations	