

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

SURVEY OF ANIMAL DIVERSITY LABORATORY

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-L
Credit Hours: Two (2)
Prerequisite: None
Corequisite: ZOO 3021
Date & Time: TBA
Professor Information: TBA

I. COURSE DESCRIPTION

This laboratory course complements the lecture corequisite ZOO 3021, which presents zoology as a scientific discipline, the basic principles of zoological nomenclature, taxonomy, and systematic, and the basic understanding of the relationships of animals to other organisms and to one another. This laboratory course provides hands-on experience with the concepts covered in the lecture course. Field trips will also complement the learning experience. Prerequisites: none; corequisite: ZOO 3021

II. COURSE OBJECTIVES

Competency 1: The student will demonstrate knowledge of the proper use of the microscope and other zoological sampling equipment by:

- 1.1. Describing the various practical field sampling techniques and laboratory examination methods.
- 1.2. Demonstrating precision in the usage of physical and/or chemical data collection equipment, including, but not limited to, salinity photometer, Secchi disk, digital meters, thermometer, and Niskin bottle.
- 1.3. Demonstrating precision in the usage of the compound and dissection microscope, specimen sampling equipment including, but not limited to, dip nets, seine nets, plankton nets, bottom dredge, and sieves.

Competency 2: The student will demonstrate knowledge of structures found in animal cells by:

- 2.1. Explaining the roles and functions of each component of the animal cell.
- 2.2. Differentiating between animal and plant cells.

Competency 3: The student will demonstrate knowledge of the procedures for animal classification and nomenclature by:

- 3.1. Discussing the development and nature of the current system of zoological nomenclature.
- 3.2. Explaining the process, procedures, and purpose of the scientific classification of animals.
- 3.3. Describing the principal theories of taxonomy.
- 3.4. Differentiating among the various concepts of what a species represents.

Competency 4: The student will identify various common animals based on their taxonomic groupings and relate structure to function in a variety of organisms by:

- 4.1. Discussing the makeup and significance of the major animal kingdoms.
- 4.2. Defining the steps involved in the evolution of multicellularity.
- 4.3. Explaining the major features and categories used to differentiate the members of each group.
- 4.4. Discussing the nature and significance of the transition to various types of body forms and shapes.

Competency 5: The student will demonstrate knowledge of the major characteristics of the sponges, cnidarians, platyhelminthes, nematodes, mollusks, annelids, echinoderms and arthropods by:

- 5.1. Differentiating the types of body symmetry seen among invertebrates.
- 5.2. Explaining the principal similarities and distinctions between the Radiata and Bilateria, protostomes and deuterostomes, acoelomates, pseudocoelomates, and eucoelomates.
- 5.3. Discussing the major biological features and characteristics of the various members of the invertebrates.
- 5.4. Identifying and categorizing the various organisms observed, based upon their respective physical and anatomical features.
- 5.5. Explaining the physiological and behavioral characteristics of the collected marine organisms in relation to their environment.

Competency 6: The student will demonstrate knowledge of the salient features of the chordates like fishes, amphibians, reptiles, birds, and mammals by:

- 6.1. Describing the similarities and differences between the members of the chordate subphyla Urochordata, Cephalochordata, and Vertebrata.
- 6.2. Discussing the unique features and evolutionary relationships between each chordate group.
- 6.3. Identifying and categorizing, by sight, the various organisms observed based upon their respective physical and anatomical features.
- 6.4. Explaining the physiological and behavioral characteristics of the collected organisms in relation to their environment.

Competency 7: The student will recognize animal behaviors and how these receive and react to various stimuli by:

- 7.1. Explaining the various mechanisms influencing animal behavior.
- 7.2. Differentiating between internal and external cues.
- 7.3. Discussing the many ways in which animals receive and respond to stimuli.

Competency 8: The student will be able to discuss the roles and relationships between animals and their environment by:

- 8.1. Defining and differentiating between community, ecosystems, populations and trophic levels.
- 8.2. Comparing and contrasting between biotic and abiotic components.
- 8.3. Understanding food webs, food pyramids, energy cycles, niches and biogeochemical cycling of nutrients.
- 8.4. Identifying and describing the surveyed communities and ecosystems, including, but not limited to, beaches, seagrass beds, mangroves swamps, and coral reefs.
- 8.5. Explaining and discussing factors attributing to the distribution of organisms within the communities and ecosystems surveyed.

Competency 9: The student will be able to discuss and demonstrate an understanding of the interconnections between animals, man, society, and technology by:

- 9.1. Determining the relevance of the animals, their ecology and habitats to human affairs.
- 9.2. Explaining the importance of interactions and interconnections between animals, man and the society.
- 9.3. Explaining the natural processes and effects of human impacts upon communities and ecosystems surveyed during the field trips.
- 9.4. Summarizing the impacts of human population, technology and activities to the biology and ecology of the various animal groups.

III. REQUIRED TEXTBOOK(S), RESOURCES AND MATERIALS

Laboratory studies in the Integrated Principles of Zoology by Hickman and Katz (2006) 13th edition, McGraw-Hill Higher Education ISBN 0-07-283074-3.

Instructor will provide laboratory exercises.

IV. SUPPLEMENTARY READING AND REFERENCES

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

- 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. GRADES/ ASSESSMENTS

Your final grade will be based on the following information:

1. Exams and Quizzes (50%)
 - exams and quizzes will include, but not be limited to, true/false, multiple choice, short answer and / or essay questions
2. Laboratory exercises and assignments (30%)
3. Field trip Reports and Oral Presentation (20%) – details provided in lab

C. 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 LABORATORY COMPETENCIES/OBJECTIVES	NSTA Secondary Teachers STANDARDS	SUBJECT MATTER STANDARDS	STATE COMPETENCIES & SKILLS
Upon successful completion of this course, the student will demonstrate...			
1. ...the proper use of the microscope and other zoological sampling equipment.	C2a20, C2a21		1.16, 1.18
2. ...knowledge of structures found in animal cells.	C2a8	7.1, 7.5, 7.7, 7.8, 7.12, 7.14	5.1, 5.2
3. ...the procedures for animal classification and nomenclature.	C2a2, C2a3	6.1, 6.2, 6.4, 6.5, 6.6	1.2, 1.8, 5.4, 7.1, 7.2
4. ... relate structure to function in a variety of organisms.	C1.5, C2a2, C2a10, C2a13	6.12	7.26
5. ...knowledge of the major characteristics of the sponges, cnidarians, platyhelminthes, nematodes, mollusks, annelids, echinoderms, arthropods, and chordates.	C2a2	6.1, 6.2, 6.6, 6.11, 7.2, 8.16, 8.17, 8.22	5.5, 5.8, 7.25, 7.26, 9.8
6. ...knowledge of the salient features of fishes, amphibians, reptiles, birds, and mammals.	C2a2	6.1, 6.2, 6.6, 6.11, 7.2, 8.16, 8.17, 8.22	5.5, 5.8, 7.25, 7.26, 9.8
7. ...recognition of animal behaviors and how these receive and react to various stimuli.	C2a9	8.22, 8.23, 8.24, 8.25	7.30, 7.31
8. ...relationships between animals and their environment.	C2a3, C2a5, C2a6, C2a9	6.1, 6.2, 6.6, 6.11, 7.2, 8.16, 8.17, 8.22	5.5, 5.8, 7.25, 7.26, 9.8
9....interconnections between animals, man, society and technology.	C2a12, C2a18, C2a21		

XIII. SAMPLE COURSE CALENDAR

Week 1	Exercises: Animal classification and nomenclature	○ Competency 3
Week 2	Exercises: Microscopy and Field equipment	○ Competency 1, 2
Week 3	Exercises: Animal Cells and Structures	○ Competency 2,
Week 4	Exercises: Porifera and Cnidarians	○ Competency 3, 4, 5
Week 5	Exercises: Platyhelminthes and Nematodes	○ Competency 3, 4, 5
Week 6	Exercises: Mollusks and Annelids	○ Competency 3, 4, 5
Week 7	Exercises: Echinoderms and Arthropods	○ Competency 3, 4, 5
Week 8	Exercises: Field trip 1	○ Requirements
Week 9	Exercises: Chordate Diversity	○ Competency 3, 4, 6
Week 10	Exercises: Fishes and Sharks	○ Competency 3, 4, 6
Week 11	Exercises: Amphibians and Reptiles	○ Competency 3, 4, 6
Week 12	Exercises: Birds and Mammals	○ Competency 3, 4, 6
Week 13	Exercises: Behavior and habitat dynamics	○ Competency 6, 7, 8, 9
Week 14	Exercises: Field trip 2	
Week 15	Exercises: Ecology and Human impacts	○ Competency 8, 9
Week 16	Exercises: Presentations	