**ZOOLOGY, BIO214-01**
**FALL 2020**

**Class Time and Location:** MW 12:30 –1:45 PM, W 2:00-4:00 PM, Spencer 229/Maddox 115
**Instructor:** Krishna Nath, Ph.D., M.Sc., B.Ed.
**Office and Contact Information:** Room # Spencer 238; Phone 394-7622 ext 1336
**Email:** knath@uarichmountain.edu
**Office Hours:** Posted on the office door

**MASK POLICY:** As per the Executive order from the governor of Arkansas, all students are required to wear a proper face covering that completely covers the nose and mouth while on campus and in class. Masks with holes or masks that do not completely cover nose and mouth are not acceptable. Any student that does not have a proper mask will leave class and be referred to the Vice Chancellor for Student Affairs for possible disciplinary action.

**FOOD & DRINK:** Food and drinks, including water are not allowed in the classroom at any time.

**RESOURCES:**

**Lecture Text:** *Zoology, 10th edition*; by Miller and Harley; 2020; ISBN 978-0-07-783727-3
**Laboratory Manual**: *Exercises for the Zoology Laboratory, 3rd edition*; by David Smith; 2013; ISBN 9781617310621

**COURSE DESCRIPTION:** Introduction to zoological principles relating to cells, organ systems, development, genetics, ecology, evolution, and animal phyla. Course designed for biology majors, but may also be taken for general education. Laboratory is an integral part of this course and participation is required for successful completion of this course. **ACTS course # BIOL 1054**

**PROGRAM OUTCOME and Rationale:** The knowledge and critical thinking skills acquired in the general education component enable students to analyze problems, to arrive at intelligent conclusions, and to make reasoned choices in their professional and personal lives. My goal is that each student will complete this course with an appreciation for the unity and diversity life on earth and be an intelligent consumer of biological resources.

**COURSE OBJECTIVES:** Upon successful completion of Zoology, the student should be able to:

- Describe the relationship that exists between zoology and the other biological sciences.
- Identify the major zoological disciplines and describe the particular aspect of zoology with which each is concerned.
- Discuss the history of man's thinking concerning organic evolution. Such discussion should include:

1. Pre-Darwinian concepts
2. Darwinism--the theory of natural selection
3. Neo-Darwinism--the modern synthesis.
4. Give evidence from the realms of biogeography, paleontology, comparative anatomy, comparative embryology, and molecular genetics to support the theory of evolution.

- Define species and describe the various processes of speciation.

- Understand and recognize how embryonic development differs among animal phyla.
  - Describe the basic characteristics of phylogeny, taxonomy, form, function, and natural history associated with the various phyla including:
    1. Protozoan Groups
    2. Porifera
    3. Cnidaria
    4. Platyhelminthes
    5. Mollusca
    6. Annelida
    7. Nematoda
    8. Arthropoda
    9. Echinodermata
    10. Chordata

## LECTURE AND EXAM SCHEDULE*

| Topic | Unit | Chapter |
|---|---|---|
| Zoology | 1 | An Evolutionary and Ecological Perspective |
| Cells | 2 | Cells, Tissues, Organs, and Organ Systems |
| | 3 | Cell Division and Inheritance |
| **Test 1** | **9/23** | **Prepare Chapter 1-3** |
| Evolution | 4 | Evolution: History and Evidence |
| Evolution | 5 | Evolution: Gene frequencies |
| Ecology | 6 | Ecology: Preserving the Animal Kingdom |
| **Test 2** | **10/14** | **Prepare Chapter 4-6** |
| Classification | 7 | Animal Classification, Phylogeny, and Organization |
| Protists | 8 | Animal-Like Protists |
| Sponges and Radiates | 9 | Multicellular and Tissue Levels of Organization |
| **Test 3** | **11/11** | **Prepare Chapter 7-9** |
| Molluscs | 11 | Molluscan Success |
| Annelids | 12 | Annelida: The Metameric body Plan |
| Arthropods | 14 | Blueprint for Success |
| Hemichordates and Chordates | 17 | Hemichordata and Invertebrate Chordates |
| Fishes | 18 | The Fishes: Vertebrate Success in Water |
| Amphibians | 19 | Amphibians: The First Terrestrial Vertebrates |
| Reptiles | 20 | Reptiles: Nonavian Diapsid Amniotes |
| Birds | 21 | Birds: Reptiles By Another Name |
| Mammals | 22 | Mammals: Synapsid Amniotes |
| **Test 4** | **12/2** | |
| **Final Exam** | **12/9** | **(Prepared decided chapters by instructor)** |

## TENTATIVE LAB SCHEDULE

| Date | Topic | Chapter |
|---|---|---|
| **Aug. 26** | **Syllabus, Fundamental Laboratory Skills/ Microscopes** | **1** |
| **Sept. 2** | **Cells and Tissues** | **2** |
| **Sept. 9** | **Animal Classification and Protists** | **4** |
| **Sept. 16** | **The Sponges** | **5** |
| **Sept. 23** | **The Radiate Animals** | **6** |
| **Sept. 30** | **The Flatworms** | **7** |
| **Oct. 7** | **The Molluscs** | **8** |
| **Oct. 14** | **The Annelids vs.**<br>**The Nematodes** | **9**<br>**10** |
| **Oct. 21** | **The Arthropods** | **11** |
| **Oct. 28** | **The Echinoderms** | **12** |
| **Nov. 4** | **Phylum Chordata** | **13** |
| **Nov. 11** | **The Fishes** | **14** |
| **Nov. 18** | **Class Amphibia** | **15** |
| **Nov. 25** | **Nonavian Reptiles** | **16** |
| **Dec. 2** | **The Birds and The Mammals; revision** | **17** |

**Dec. 9** **Final Exam**

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**Disclaimer**: The information contained in this syllabus is as accurate as possible, but may be subject to change with reasonable advance notice. The schedule and content of lectures and assignments may be changed at the discretion of the instructor upon oral notification in class. Changes may involve additions, deletions, substitutions, or changes in sequence or due date.

**COURSE CONDUCT:** Classroom presentation is basically of the lecture-demonstration type. Lecture will be over the pre-assigned chapters with powerpoints delivered as a visual aid. This will be supplemented with various scientific models, representative specimens, supplemental handouts, and special projects. Students are required to ***READ*** the material in the textbook and ***take notes*** over the lectures. It is advisable to read at least 5 pages in the assigned chapter daily. Students should take notes and are expected to study beyond the lab and classroom and manage their time to develop good study habits for this course.

**LABORATORY CONDUCT:** The laboratory consists of a series of hands-on exercises that are designed to reinforce some of the concepts covered in lecture. We will review taxonomy of different phyla covered in lecture, dissect representative organisms, and make anatomical comparisons. This will consist of microscope usage and dissections to familiarize the student personally with anatomy and physiology of the different phyla. Students are expected to review the lab exercises **BEFORE** coming to lab to be prepared for both the exercise and the quiz.

**UARM CREDIT HOUR CALCULATOR:** For every course credit hour, you should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, reviewing, organizing notes, preparing for upcoming quizzes/exams, problem solving, developing and completing homework, and other activities that enhance learning. For a three hour course, a typical student should expect to spend at least nine hours per week dedicated to the course. This includes the time spent in class.

**COURSE EVALUATION:** Evaluation of student performance in the course will be based on the following factors:

| | | | |
|---|---|---|---|
| 1. | Four Tests 1-4: | 4 @ 100 points each | = 400 points ( Test 2 is Mid-term Exam. |
| 2. | Quizzes and assignment | 11 @ 10 points each | = 100 points (lowest quiz will be dropped) |
| 3. | Final Exam: | 1 @ 100 points | = 100 points |
| 4. | Lab activities: | 11 @ 10 points each | = 100 points (one lowest will be dropped) |
| 5. | Techniques on Zoology: | 1 @ 20 points | = 20 points |
| 6. | One Formal Lab Report: | 1 @ 20 points | = 30 points |
| 7. | Lab Final Exam: | 1 @ 50 points | = 50 points |
| | **Total points** | | **= 800** |

GRADING SCALE:

A = 100 - 90%
B = 89 - 80%
C = 79 - 70%
D = 69 - 60%
F = 59% or lower

**LABORATORY QUIZZES** – Approximately 10 quizzes will be given throughout the semester during laboratory periods. The quizzes will consist of questions related to laboratory exercises performed, assigned readings, and related lecture information. These quizzes will be administered at the end of class, most often orally. In some cases, participation in dissections, lab report, or a completed exercise from the manual will be submitted in lieu of a quiz.

**LAB PRACTICAL** – Exams in the laboratory will test your knowledge of the material covered in lab. This exam will test your knowledge of classification of organisms (Phylum, Class, and Order,) identification of anatomical structures, and function of those structures. A crib sheet or notes will not be permitted.

**ATTENDANCE REQUIREMENTS:** As a student, you are responsible for all material presented during lecture, whether present for the class or not. Assignments are to be completed in a timely fashion; therefore all make-up work must be completed within 5 calendar days of your return following an absence. Unexcused absences are not to exceed twice what the class meets in a week. Laboratory is a required part of this course and failure to attend or participate **will** result in an "F" for this course. For further information, see "Student Attendance" on page 70 of the 2017/2018 UARM Academic Catalog.

**Make-up Policy:** A student who misses an assignment because of an officially sanctioned college activity or those with a documented excuse for their absence, will be permitted to make up the assignment or test without penalty. Others may also make up missed exams, but will be penalized 20% for each occurrence. Any deviation from this policy will be considered on a case-by-case basis.

**Additional Information:** Food and drinks are not permitted in the laboratory. Please make sure that your cell phone and any other electronic devices are turned off (or to a non-sound mode) during the class session. **Place all such devices out on the desktop**.

**Disability Policy:** It is the policy of UARM to accommodate students with disabilities, pursuant to state and federal law. Any student with a disability who needs accommodations should contact the Vice President for Student Affairs Office, 394-7622 ext.1400.

**Arkansas Clean Air Act:** In compliance with the Arkansas Clean Air Act, UARM is a smoke and tobacco free facility. Students are to refrain from the use of all tobacco products while on campus.

**Student Misconduct:** Students committing misconduct are subject to disciplinary sanction(s) and or restrictions. Misconduct or prohibited behavior includes, but is not limited to endangerment, harassment, disruption, sexual misconduct, dishonesty, illegal drugs and/or alcohol, fire or safety issues, gambling, property violations, computer violations or other violations as listed in detail in the UARM catalog.

**UARM Mission:** University of Arkansas Rich Mountain exists to provide all residents of the Ouachita Mountain Region with exemplary educational and enrichment opportunities to improve the quality of life and standard of living.

**Campus Security:** UA Rich Mountain strives to provide a safe learning environment; therefore, students who know of any security risk are asked to contact a college official. For more information follow this link and look under Health and Safety: http://www.uarichmountain.edu/at-a-glance/disclosures

**UA Rich Mountain Mission:** UA Rich Mountain provides transformative education to all learners*.

*Under review

# Credit Hour Requirement Calculator

| | | | |
|---|---|---|---|
| **Course Information** | | | |
| Department, Course Number | | Biological Science | BIO214 |
| Course Title | | Zoology | I |
| Credit Hours | 4 | | |
| Mode of Delivery | Traditional | | Lecture/Lab |
| Weeks in Part of Term | 15 | | |
| Level of Reading Material | Advanced/Scientific/Technical (2) | | 2 |
| Reading Level of Students | Average Student (2) | | 2 |
| Average Pages per Hour | 11 | | |

| | | | *Enter either week or term, not both* | |
|---|---|---|---|---|
| **Contact Hours** | | **Hours/Week** | **Hours/Term** | **Total Hours** |
| Lecture/Recitation | | | 45 | 45 |
| Lab Contact Hours | | | 30 | 30 |
| | **Pages Asg'd** | **Hours/Week** | **Hours/Term** | |
| **Syllabus Items** | | | | |
| Reading Lecture Material | 400 | | 18.9 | 36.4 |
| Chapter Points Homework | | | 20 | 20 |
| Reading Lab Assignment | 70 | | 10.8 | 6.4 |
| Preparing for Lab Practical | | | 3 | 3 |
| Reviewing for Exams | | | 8 | 8 |
| | | | | 0 |
| **Total Hours** | | | | 150.8 |
| **Required Hours** | | | | 141 |
| **Difference** | | | | Ok + 0.8 |