BIOLOGICAL SCIENCE, BIO 1543-Lec0
Spring 2022

Class Time and Location: **M** 8:00 AM –9:15AM, **W** 8:00 AM –9:15AM; Room # S 229
In Person Lab **M** 9:30AM-11:30 AM
Online: Virtual Activities

Instructor: Krishna Nath, Ph.D., M.Sc., B.Ed.
Office and Contact Information: Room # Spencer 229; Phone 394-7622 ext 1336
Email: knath@uarichmountain.edu

Resources:

Textbook: *Essentials of Biology, 6th ed*; by Mader and Windelspecht.

MASK POLICY: As per the direction of the University of Arkansas Board of Trustees, 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.

COURSE DESCRIPTION: This course provides a study of fundamental biological concepts including terminology, structure and function, genetics, evolution, classification, processes and characteristics unique to living organisms. It is designed to introduce the principles of biology and will provide the necessary foundation for those desiring additional course work in the field of biology and health sciences. Laboratory is an integral part of this course and participation is required for successful completion of this course. **ACTS COURSE: BIOL1014**

PROGRAM OUTCOME and Rationale: The purpose of the Associate of Arts Program is to provide students with the knowledge and critical thinking skills that will enable students to analyze problems, arrive at intelligent conclusions, and make reasoned choices in their professional and personal lives.

- Students will demonstrate an understanding of physical and biological principles.
- Students will apply technological and research skills to identify, locate, and process information.
- Students will demonstrate competency in writing, reading, speaking, and listening.
- Students will be able to compete academically upon transfer to a four-year institution.

COURSE OBJECTIVES: Upon successful completion of Biological Science, the student should be able to:

1. Identify the characteristics of life and the theory that explains the unity and diversity of these characteristics.
2. Utilize the steps of the scientific method in biological problem solving.
3. Describe the relationship between Science and Technology.
4. Competently use a light microscope and computer technology to research biological information.
5. Review the components of a typical cell to their function in the cell.
6. Describe the importance of chemistry and biological molecules to metabolism.
7. Compare the chemical reactions of photosynthesis and cellular respiration including where there occur.
8. Distinguish between mitosis and meiosis including their role in the life cycle.
9. Discuss the role of DNA replication and protein synthesis.
10. Explain the importance of Genetics to the theory of evolution.
11. Define species and describe in a general way the process by which speciation occurs.

12. Describe the typical structure of vascular plant anatomy
13. Identify the different organ systems and their functions in the human body.
14. Define ecology identifying its importance to society.

Table: Tentative Schedule and Activities

Week	Topic
1-4	Ch1 The Science of Life Ch2 The Chemical Basis of Life Ch3 The Organic Molecules of Life Ch4 Inside the Cell
Test 1	**2/2/2022**
5-8	Ch5 The Dynamic Cell Ch6 Energy for Life: Photosynthesis Ch7 Respiration: Energy for Cells
Mid-term	**3/2/2022**
9-12	Ch8 Cellular Reproduction: Mitosis Ch9 Meiosis and the Genetic Basis of Sexual Reproduction Ch10 Patterns of Inheritance
Test 2	**4/4/2022**
13-16	Ch11 DNA Biology Ch 12 Biotechnology and genomics Ch12 Darwin and Evolution Ch30 Ecology and Population
Test 3	**4/27/2022**
Final Exam	**5/4/2022**

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 pre-assigned chapters with PowerPoint delivered as a visual aid. This will be supplemented with various scientific models, representative specimens, supplemental handouts, and special projects. 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 principles covered in lecture. Labs will also introduce the student to some common laboratory equipment and Good Laboratory Practices. Students are expected to follow the instructor's direction and comply with the Rules of the Laboratory. Lab exercises are assigned beforehand and it is expected that you **read the material BEFORE coming to class**. Labs are designed to be investigative and will require critical thinking skills to analyze results of experiments.

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 Requirements / Evaluation for Lecture: Evaluation of student performance in the course will be based on the followings. However, each students need to be graded independently for Lecture & Lab, respectively.

1. Four Tests 1-3: 3 @ 50 points each = 150 points
2. Mid-Term 1 @ 100 points = 100 points
3. Quizzes and assignments 10 @ 20 points each = 200 points
4. Final Exam 1 @ 150 points = 150 points

Total points possible = 600

GRADING SCALE:
The final grade for the course will be determined by dividing the student's total number of points earned by the number of possible points. Grades are assigned based on the following percentage scale, after rounding the calculated percentage to the nearest whole number:

Percentage	Final Grade
90-100	A
80- 89	B
70- 79	C
60- 69	D
<60	F

EXAMS: Exam dates are given in the syllabus and students are required to take all the tests offered including the final exam. Exam questions will be taken from lecture notes, laboratory exercises, discussion, audiovisuals, handouts, textbook and other assignments. Many exam questions will require use of this material and critical thinking to conclude the answer. Exams may include all or any combination of the following types of questions: multiple choice, true/false, short-answers, fill-in-the blank, draw and label, matching, and short answer.

LEARNING OUTCOMES – Your best study guide for exams. These are homework assignments meant to ensure that students are taking notes in class and reading the chapters. You are expected to READ the chapter, review and answer the learning outcomes upon completion of each chapter in lecture.

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.

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.

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.

Credit Hour Requirement				
Course				
Department, Course		Biological		BIO154
Course	Biological			
Credit	4			
Mode of	Traditiona			Lecture/La
Weeks in Part of	1			
Level of Reading	Advanced/Scientific/Technical			2
Reading Level of	Average Student			2
Average Pages per	1			
		Enter either week or term, not		
Contact		**Hours/Wee**	**Hours/Ter**	**Total**
Lecture/Recitatio		3		4
Lab Contact		2		3
	Pages	**Hours/Wee**	**Hours/Ter**	
Syllabus				
Reading Lecture	40		36.	36.
Learning			1	1
Reading Lab	15		16.	13.
Preparing Lab			4	4
Reviewing lecture material for			8	8
				0
				0
Total				15
Required				15
Differenc				Ok + 2