Course title and number: **BIOL 1406-13**

Term: Fall 2019

Instructor: Dr. Md Saydur Rahman, Ph.D. - Assistant Professor
Office Location: LHSC 2.812
Office Phone: 956-882-5041
Office Hours: Tue: 9:30 -12:00 am, 3:00 -5:30 pm
Email: md.rahman@utrgv.edu

Contract with Instructor: If you have any questions (e.g., lecture class, exam, grades, textbooks etc.) to the content of this course, please contact me via email (please use your UTRVG email), phone or come to my office. I will be most happy to assist you anytime (time permitting); however, it may be easiest to contact me during office hours.

## COURSE INFORMATION

### Materials – Textbooks, Readings, Supplementary Readings:

**Textbook Required:** Suggested textbook - *Raven Biology*

**Publisher:** McGraw Hill, Authors: Raven, Johnson, Mason et al.,

**Readings:** Supplemental reading materials or references will be provided.

### Course Description:

This course introduces the principles and concepts of biology. Emphasis is on biological and cellular functions, metabolism and energy transformation, genetics, evolution, gene, protein, and other related topics.

### Learning Objective/Outcomes:

Upon completion, students should be able to demonstrate understanding of life at the molecular, cellular and biochemical levels.

1. Students will be able to understand the biological diversity of life.
2. Students will be able to understand the structure and function of cell.
3. Students will be able to understand the regulation of gene and protein, and their functions.

### THECB Common Core Curriculum Learning Objectives

This course may be used to fulfill three hours of the natural science and technology component of the university core curriculum and addresses the following four core objectives established by the Texas Higher Education Coordinating Board (THECB): communication skills, critical thinking skills, teamwork and empirical and quantitative skills.

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Activities/Assignments that Addresses Objective</th>
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<tr>
<td>Critical Thinking</td>
<td>Activities will include developing hypotheses, interpreting data and analyzing existing research by using the scientific method</td>
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<tr>
<td>Communication Skills</td>
<td>Students will have several written assignments including essays and</td>
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**THECB ACGM Learning Objectives**

Fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. Laboratory activities will reinforce the fundamental principles of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included.

Upon successful completion of this course, students will:

**Lecture:**
1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, and important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

**Department Specific Learning Objectives (SLOs):**

1. **Role of the Cell:** The Biology graduate knows the role of the cell in life and living systems, and understands the interrelationships among subcellular structures that contribute to its functioning as a unit.

2. **Role of Genetics:** The Biology graduate understands the role of genetics in inheritance and can explain how environmental conditions influence natural selection processes and contribute to adaptation.

3. **Diversity of Life:** The Biology graduate is aware of the diversity of life and interrelationships between an organism and its environment.

4. **Structure and Function:** The Biology graduate understands how the organization of a specific structure within an organism is related to a specific function, understands interrelationships among organs and organ systems within an organism, and how interaction between structure and function contribute to the survival of the organism.

5. **Scientific Method:** The Biology graduate can formulate a testable hypothesis, evaluate and design experiments, analyze and interpret data, and communicate research findings in both oral and written form.
**Tentative Schedule and Subject to Change:**

Week 1 (Aug 26): Interactions and Class Introduction
Week 1 (Aug 28): Introduction: Science of Biology
Week 2 (Sep 02): Labor Day Holiday, NO Classes
Week 2 (Sep 04): Nature of Molecules/Atoms
Week 3 (Sep 09): Water: A Vital Component
Week 3 (Sep 11): Chemical Building Blocks of Life: Carbon
Week 4 (Sep 16): Chemical Building Blocks of Life: Large Biological Molecules

**Week 4 (Sep 18): Exam 1**

Week 5 (Sep 23): Review Exam 1, and Cell Structure
Week 5 (Sep 25): Membranes: Structure and Function
Week 6 (Sep 30): Energy and Metabolism
Week 6 (Oct 02): Cellular Respiration, TCA Cycle and Fermentation
Week 7 (Oct 07): Cellular Respiration, TCA Cycle and Fermentation
Week 7 (Oct 09): Photosynthesis
Week 8 (Oct 14): Cell Division (Cell Cycle): Mitosis
Week 8 (Oct 16): Sexual Reproduction and Meiosis

**Week 9 (Oct 21): Exam 2**

Week 9 (Oct 23): Review Exam-2 and Sexual Reproduction and Meiosis
Week 10 (Oct 28): Patterns of Inheritance: Mendel and the Gene Idea
Week 10 (Oct 30): Chromosomal Basis of Inheritance
Week 11 (Nov 04): DNA: The Genetic Material
Week 11 (Nov 06): Genes and How They Work
Week 12 (Nov 11): Gene Expression: from Gene to Protein

**Week 12 (Nov 13): Exam 3**

Week 13 (Nov 18): Gene Expression: from Gene to Protein
Week 13 (Nov 20): Genes Within Populations
Week 14 (Nov 25): Evidence for Evolution
Week 14 (Nov 27): Origin of Species
Week 15 (Dec 02): Viruses
Week 15 (Dec 04): Review for Final Exam

**Week 16: Final Exam on Monday December 09 at 1:15 pm**
Instructor: D. Serrano  
Department:  
Course Code:  
Course Title:  
Semester: Fall 2022  
Course Number:  
TA:  
Office Hours:  
Location:  
Office Phone:  
Email:  
Canvas:  
Blackboard:  
Social Media:  
Textbook:  
Course Materials:  
Course Schedule:  
Course Format: Lecture, Discussion, and Videos  
Course Evaluation:  
Homework Assignments:  
Synchronous Quizzes:  
Asynchronous Quizzes:  
Discussion Board:  
LMS: Canvas, Blackboard  
Course Components:  
Instructional Methods: Lecture, discussion, and videos  
Activities: Homework Assignments: Homework may be assigned with specific instructions as well as a due date and time. Late homework will not be accepted. The value (percentage of your final grade) of each homework assignment will be set at the time of the assignment. I reserve the right to modify the schedule and assignments.  
Scheduled Quizzes/Open Questions: I reserve the right to administer scheduled quizzes/open questions; however, no individual unscheduled quiz will exceed 2 percentage points of the final grade.  
Expectations:  
● Be punctual and attend every lecture.  
● Be attentive and participate in class discussions.  
● Be respectful to classmates.  
● Complete class assignments on time.  
● Be punctual on exam day, complete the monthly exam including a comprehensive FINAL exam.  
● Achieve an average grade of ≥60% according to the grading basis (please see below)  
Grade Basis:  
1. Monthly exams (Exam 1, Exam 2, Exam 3): 45 points (60%)  
2. Attendance/Participation: 7.5 points (10%)  
3. Assignments/Home Works: 7.5 points (10%)  
4. Final exam: 15 points (20%)  
Total 75 points  
Missing exams will be counted as zeroes in the overall grade computation. I reserve the right to adjust your grade for violation of the minimum expectations.  
Absenteeism:  
1. Each student will be placed on subject to a penalty of point off of their final grade for each unexcused absence. A tardy will count as 0.25 point per class of an unexcused absence.  
2. Upon exceeding 4 unexcused absences, I reserve the right to administratively drop you from the class.  
Grading Policies:  
The following scale is adhered to strictly.  
90.0 – 100% = A  
80.0 - 89.9% = B  
70.0 – 79.9% = C  
60.0 – 69.9% = D  
<60.0% = F  
Academic Integrity:  
Misconduct and plagiarism are violations of the student conduct code. Any suspected cases of academic misconduct will be handled according to UTRGV rules and regulations.
Calendar of Activities:
The UTRGV academic calendar can be found at http://my.utrgv.edu at the bottom of the screen, prior to login.
Important dates for Fall 2018 include:

Aug 26  Fall classes begin
Aug 29  Last day to add a class or register for Fall classes
Aug 30  Last day to withdraw (drop all classes) for a 80% refund
Sept 2  Labor Day Holiday, no classes
Sept 09  Last day to withdraw (drop all classes) for a 70% refund
Sept 11  Census day (last day to drop without it appearing on the transcript)
Sept 16  Last day to withdraw (drop all classes) for a 50% refund
Sept 23  Last day to withdraw (drop all classes) for a 25% refund
Nov 13  Last day to drop (DR grade) a class or withdraw (grade of W)
Nov 28 - Nov 29  Thanksgiving Holiday, no classes
Dec 5  Study Day, no classes
Dec 6 – Dec 12  Final Exams
Dec 16  Grades due by 3:00 p.m.

COURSE SPECIFIC PROCEDURES AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:
Responsible Use of Technology Resources: It is expected that all students will only use laptop computer, iPAD, and other technology in class. Answering a cell phone, listening to music, texting, or using a laptop computer for unrelated matters to the course may be grounds for dismissal from class and/or other penalties. Students are not allowed to use video, nor audio recording devices of any kind during class time without prior consent of the instructor.

Students with Disabilities:
If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

Pregnancy, Pregnancy-related, and Parenting Accommodations
Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) are encouraged to contact Student Accessibility Services for additional information and to request accommodations.

Mandatory Course Evaluation Period:
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available Nov. 14 – Dec. 4. Students who complete their evaluations will have priority access to their grades.

Attendance:
Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.
Scholastic Integrity:
As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

Sexual Harassment, Discrimination, and Violence:
In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

Course Drops:
According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

Student Service:
Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Students Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor’s office hours. University Resources include the Learning Center, Writing Center, Advising Center and Career Center. The centers provide services such as tutoring, writing help, critical thinking, study skills, degree planning, and student employment. Locations are:

- Learning center: BSTUN 2.10 (Brownsville) or ELCTR 100 (Edinburg)
- Writing center: BLIBR 3.206 (Brownsville) or ESTAC 3.119 (Edinburg)
- Advising center: BMAIN 1.400 (Brownsville) or ESWKH 101 (Edinburg)
- Career center: BCRTZ 129 (Brownsville) or ESSBL 2.101 (Edinburg)

I have read and understand the information and UTRVG policies in this syllabus and will abide by those policies. **YES** , **NO**
If your answer is **NO**, please explain why or ask any questions:

Your name: ________________________________, Student ID: ______________________

Your signature: ____________________________________________________________, Date: ____________________________