[BIOL 4051 Biology Research]
[Summer 2020]

Instructor: Dr. George E. Brown
Section # and CRN: Z01 32129
Office Location: 430F New Science
Office Phone: 936-261-3161
Email Address: gebrown@pvamu.edu
Office Hours: 7:30a.m.-7:50a.m. TWF on e-course and (pvpanther.zoom.us) and 4:31p.m. – 5:00pm TWF Students may schedule a tutorial session time with the instructor at 8:00p.m.on Tuesday, Wednesday, or Friday. Please make your request during class so that the instructor may announce the session to the entire class.

Mode of Instruction: [Remote by e-course and zoom]
Course Location: e-course and zoom
Class Days & Times: MWR 7:00am-7:50am
Catalog Description: [Basis of life, cell theory, cell structure, energy transformation, reproduction and genetic variability, and origins of diversity of organisms]

Prerequisites: Major in Biology
Co-requisites: [None]
Required Texts: Assigned research articles from biological journals
Class laboratory handouts
Videos of research techniques to demonstrate within the limited time techniques that usually require days to perform
Selected materials from various graduate biology schools


Supplements: Required Materials

Materials needed to enhance learning biology:
1. Students must read the topics on the e-course for this class prior to class and be prepared to be quizzed by the instructor.
2. Students are required to maintain a notebook with all class handouts, graded exams, reports, and quizzes attached to the notebook.
3. **Number 2 pencils** for exams
4. At least 4 each SCANTRON forms 884-ES (Answer choices for 200 questions) for each exam
**Student Learning Outcomes:**

<table>
<thead>
<tr>
<th>Program Learning Outcome # Alignment</th>
<th>Core Curriculum Outcome Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3, 4</td>
<td>1. Critical thinking</td>
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<tr>
<td></td>
<td>2. Communication</td>
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<tr>
<td></td>
<td>3. Problem solving</td>
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<td></td>
<td>4. Personal &amp; social responsibility</td>
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<table>
<thead>
<tr>
<th>Upon successful completion of this course, students will be able to:</th>
<th><img src="image-url" alt="Image" /></th>
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<tbody>
<tr>
<td><strong>1</strong> Upon successful completion of this course, students will be able to:</td>
<td><img src="image-url" alt="Image" /></td>
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<tr>
<td>demonstrate on course exams how to conduct laboratory investigations using safe, environmentally appropriate, and ethical practices.</td>
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<td><strong>2</strong> Upon successful completion of this course, students will be able to:</td>
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<tr>
<td>demonstrate on course exams how to the use of the scientific method during laboratory investigations in the following ways:</td>
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<tr>
<td>a. Plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting instruments and technology.</td>
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<tr>
<td>b. Collect data, organize it, analyze it, evaluate, make inferences, and predict trends.</td>
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<tr>
<td>c. Communicate valid conclusions.</td>
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<tr>
<td><strong>3</strong> Upon successful completion of this course, students will be able to:</td>
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<tr>
<td>demonstrate on course exams the use of critical thinking and scientific problem solving to make informed decisions in the following ways:</td>
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</tr>
<tr>
<td>a. Analyze, review, and critique scientific explanations, including hypotheses and theories using scientific evidence and information.</td>
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<tr>
<td>b. Draw inferences based on data.</td>
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<tr>
<td><strong>4</strong> Upon successful completion of this course, students will be able to:</td>
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<tr>
<td>demonstrate on course exams the characteristics of living things that distinguish them from non-living things in the following ways:</td>
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</tr>
<tr>
<td>a. Describe the hierarchy of biological organization.</td>
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<tr>
<td>b. Contrast the six kingdoms of living things and know examples of each.</td>
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<tr>
<td>c. Summarize the role and examples of producers, consumers, and decomposers.</td>
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<tr>
<td><strong>5</strong> Upon successful completion of this course, students will be able to:</td>
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<tr>
<td>demonstrate on course exams the understanding of the chemical basis of life in the following ways:</td>
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</tr>
<tr>
<td>a. Name the principle elements in living things and provide a function of each.</td>
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</tbody>
</table>
|   | b. Learn the mass, charge, and arrangement of electrons, protons and neutrons in the principle atoms of living things to include the electron orbitals, energy levels, and electron shells.  
c. Distinguish between atomic number and atomic mass.  
d. Explain how the number of valence electrons of an atom is related to its chemical properties.  
e. Compare the mechanisms by which ionic bonds, covalent bonds, and hydrogen bonds are formed.  
f. Explain how cations and anions form and how they interact.  
g. Distinguish between oxidation and reduction.  
h. Show how hydrogen bonds are formed between water molecules and explain how they are responsible for the various properties of water that are essential for life.  
i. Convert the hydrogen ion concentration (moles/liter) of a solution to a pH value.  
j. Contrast acids, bases, and salts. Describe the composition of salts and why they are important to organisms. |   | 1. Critical thinking  
2. Communication  
3. Problem solving  
4. Personal & social responsibility |
|---|---|---|
| 6 | Upon successful completion of this course, students will be able to demonstrate on course exams an understanding of the four types of organic molecules in the following ways:  
a. Distinguish between organic molecules and inorganic compounds.  
b. Describe the properties of carbon that make it the central atoms of organic compounds.  
c. Distinguish between the three types of isomers.  
d. Identify the major functional groups that present in certain organic molecules.  
e. Learn the function and draw the structures of the carbohydrates, lipids, proteins, and nucleic acids to include the building block molecules: monosaccharides, glycerol, fatty acids, amino acids, phosphates, and nucleotides.  
f. Understand biological function of each type of organic molecules studied.  
g. Draw the structures of amino acids, explain how they are grouped according to their radical, group, and explain the levels of protein structure.  
h. Draw the chemical structures of ribonucleotides and deoxy-ribonucleotides to include the purines, pyrimidines, pentoses, and phosphate groups.  
i. Draw the structure of DNA and RNA. |   |   |
| 7 | Upon successful completion of this course, students will be able to demonstrate on course exams how the cell is the basic unit of life and describe the cell theory in the following ways:  
|   | a. Compare and contrast the characteristics of prokaryotic and eukaryotic cell.  
|   | b. Explain why the relationship between surface area and volume of a cell determines its efficiency and entrance into cell division.  
|   | c. Describe the structure and function of the various bacterial cell structures.  
|   | d. Describe the structure and function of eukaryotic cell structures and organelles.  
|   | e. Explain the methods used to study cells.  
|   | f. Trace the path of proteins synthesized in the rough endoplasmic reticulum as they are processed, modified and transported to specific destinations.  
|   | g. Compare the functions of mitochondria and chloroplasts.  
|   | h. Explain the structure and function of microtubules, intermediate filaments, and actin filaments and their importance to cells and animal tissues.  
|   | i. Describe how flagella, cilia, pseudopods, actin and myosin function in cellular and animal movement. | #1, 2, 3, 4 | 1.Critical thinking  
|   | 2.Communication  
|   | 3.Problem solving  
|   | 4.Personal & social responsibility |

| 8 | Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of the phospholipids bilayer structure and function of biological membranes in the following ways:  
|   | a. Explain the importance of cellular membranes and their functions.  
|   | b. Explain how the various classes of membrane proteins associate with phospholipids bilayer and discuss the role of each class of proteins.  
|   | c. Describe the passage of materials through the membranes by diffusion, osmosis, facilitated diffusion, active transport, endocytosis, and exocytosis.  
|   | d. Understand how cells communicate by cell signaling.  
|   | e. Demonstrate how cell form tissues and how the various cell junctions connect cells. | #1, 2, 3, 4 | 1.Critical thinking  
|   | 2.Communication  
|   | 3.Problem solving  
|   | 4.Personal & social responsibility |

| 9 | Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of the laws of thermodynamics that apply energy transformations in living systems | #1, 2, 3, 4 | 1.Critical thinking  
|   | 2.Communication  
|   | 3.Problem solving |
in the following ways:
   a. Know how ATP and GTP are the energy currency of cells.
   b. Understand how organic catalyst such as enzymes and ribozymes speed up specific chemical reactions in cells.
   c. Know how the various enzymes function and how they are regulated.

10 Upon successful completion of this course, students will be able to demonstrate on course exams knowledge the four stages of aerobic respiration in the following ways:
   a. Know the enzyme catalyzed reaction steps in stage I of glycolysis and stage II of glycolysis.
   b. Draw the substrates and products of each step of glycolysis.
   c. Draw the enzyme, substrate and products of the conversion of pyruvate to acetyl CoA.
   d. Draw the enzymes, substrates, and products of each step of the citric acid cycle.
   e. Conceptualize the energy conversions of each step of the electron transport chains and the coupled oxidative phosphorylation.

11 Upon successful completion of this course, students will be able to demonstrate on course exams understanding of photosynthesis in the following ways:
   a. Know how covalent bonds of water are disrupted during the light dependent reaction and the three products are produced.
   b. Know how ATP is formed by chemiosmosis.
   c. Demonstrate by drawing the enzyme catalyzed steps of the Calvin cycle to include the substrates and products.
   d. Draw the substrates and products of each step of the synthesis of alpha glucose from two glyceraldehydes 3-phosphate (G3P) molecules.

12 Upon successful completion of this course, students will be able to demonstrate on course exams understanding of chromosomes, mitosis, and meiosis in the following ways:
   a. Explain chromosomes in terms of genes, loci, heterochromatin, euchromatin, and species number of chromosomes, sister chromatids, centromeres, and kinetochores.
   b. Describe the principle events of the stages of the
eukaryotic cell cycle and how it is controlled.
c. Diagram the process of mitosis.
d. Draw the process of both stages of meiosis.
e. Distinguish between asexual reproduction and sexual reproduction.
f. Distinguish between haploid cells and diploid cells.
g. Define homologous chromosomes.

13 Upon successful completion of this course, students will be able to demonstrate on course exams understanding of the basic principles of heredity in the following ways:
   a. Define and use correctly the terms allele, locus, genotype, phenotype, dominant, recessive, homozygous, heterozygous, monohybrid cross, dihybrid cross, trihybrid cross, and test cross.
b. Apply the product rule and sum rule when predicting the outcomes of genetic crosses.
c. Solve genetic problems involving complete dominance, incomplete dominance, epistasis, polygenes, multiple alleles, and X-linked inheritance.
d. Explain some of the ways that genes may interact to affect a phenotype.
e. Explain the genetic determination of sex.

14 Upon successful completion of this course, students will be able to demonstrate on course exams understanding of how the structure of DNA forms the genetic codes for genes in the following ways:
   a. Summarize the evidence observed in the 1950’s demonstrating that DNA is the genetic material.
b. Show by drawings how the four types of deoxyribo-nucleotide subunits are bonded together to form the structure of DNA. State the base pairing rule for DNA.
c. Show by drawings how the ribo-nucleotide subunits are bonded together to form RNA.
d. Understand DNA transformation of bacteria, and bacteriophage DNA transduction of bacteria.
e. Summarize the evidence that demonstrated semi-conservative replication of DNA.
f. Explain the steps of DNA replication.
g. Know each enzyme involved in DNA replication and its function.
h. Compare the organization of DNA in prokaryotic and eukaryotic cells.
### Expression (transcription) in the following ways:

a. Summarize the early evidence that most genes code for proteins.
b. Outline the flow genetic information (central dogma) from DNA to Protein.
c. Know the various types of RNA polymerases and how they catalyze the synthesis of RNA.
d. Know the substrates and products of transcription.

### Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of gene regulation in the following ways:

a. Explain the organization of bacterial genes into operons.
b. Explain the function of each gene.
c. Explain why some operons are inducible and others are repressible.
d. Explain the role of repressors in the regulation of gene expression.
e. Differentiate between positive and negative control of operon gene expression.
f. Draw the components of a eukaryotic gene and the DNA sequences that are involved in the regulation of transcription of that gene.
g. Provide examples of DNA binding proteins and describe how they bind to DNA.
h. Explain how transcriptional factors (proteins) facilitate transcription.
i. Describe how a change in chromosomal structure affects which genes are expressed.
j. Explain how one gene in a multi-cellular eukaryote might be able to produce different products in different types of cells.

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### Upon successful completion of this course, students will be able to outline the flow genetic information (central dogma) from DNA to Protein.

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### Upon successful completion of this course, students will be able to diagram the processes of initiation, chain elongation, and chain termination in protein synthesis.

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### Upon successful completion of this course, students will be able to compare mRNA synthesis, modifications, and ribosome recognition sites in prokaryotes and eukaryotes.
<table>
<thead>
<tr>
<th>k.</th>
<th>Describe types of regulatory controls that can be exerted in eukaryotes after the mature mRNA is formed.</th>
</tr>
</thead>
</table>
| **18** | Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of DNA technologies and genetic engineering in the following ways:  
| a. | Demonstrate how restriction enzymes cut DNA molecules and provide examples of how these restriction endonucleases are used in recombinant DNA technology.  
| b. | Summarize the properties of plasmids cloning vectors.  
| c. | Distinguish between a genomic library and a cDNA library.  
| d. | Describe uses for DNA hybridization probes.  
| e. | Explain how specific primers are used to amplify (replicate) specific genes from a mixture genomic DNA or cDNA.  
| f. | Diagram the dideoxyribo-nucleotide triphosphates method of sequencing DNA.  
| g. | Provide a list of important proteins that have been produced by genetic engineering.  
| h. | Describe some transgenic plants and animals that been produced. |
| **19** | Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of the human genome and human genetics in the following ways:  
| a. | Define human genetics, human genome, bioinformatics, and pharmacogenomics.  
| b. | Determine the probable genotypes of the individuals in a pedigree.  
| c. | Distinguish between chromosomal abnormalities and single gene defects.  
| d. | Draw how non-disjunction may occur during meiosis to cause Down’s syndrome, Klinefelter Syndrome, and Turner Syndrome.  
| e. | Explain how each of the following genetic defects is inherited: phenylketonuria, sickle cell anemia, cystic fibrosis, Tay-Sachs disease, Huntington disease, color blindness, and hemophilia A.  
| f. | Describe how prenatal diagnosis is made by amniocentesis, chorionic villus sampling and ultrasound imaging. |
| **20** | Upon successful completion of this course, students will be able to demonstrate on course exams an understanding of how the regulation of gene expression controls development of multicellular organisms |
in the following ways:

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<tbody>
<tr>
<td>a.</td>
<td>Distinguish between cell determination and cell differentiation.</td>
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<tr>
<td>b.</td>
<td>Describe evidence that demonstrated totipotency (nuclear equivalence) of some differentiated plant and animal cells.</td>
</tr>
<tr>
<td>c.</td>
<td>Explain the vertebrate cell lineage from zygote to germ layers to adult structures, organs and systems.</td>
</tr>
<tr>
<td>d.</td>
<td>Distinguish between the function of maternal effect genes, segmentation (zygotic) genes, and homeotic genes of animals.</td>
</tr>
<tr>
<td>e.</td>
<td>Explain how cell signaling and transcription factors control the order in which genes are expressed during development. Provide some examples of genes that are known to function as genetic switches in development.</td>
</tr>
<tr>
<td>f.</td>
<td>Define induction and programmed cell death and give examples of the roles they play in development.</td>
</tr>
</tbody>
</table>

Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of evolution or how sexual reproduction and mutations produce offspring with different genotypes from either parent. Over many generations the survivors can demonstrate (evolve) new traits that will isolate them reproductively from their ancestors in the following ways:

<p>| | |</p>
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<tbody>
<tr>
<td>a.</td>
<td>Explain the history of how the theory of evolution developed.</td>
</tr>
<tr>
<td>b.</td>
<td>Explain the four premises of evolution by natural selection.</td>
</tr>
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<td>c.</td>
<td>Explain the synthetic theory of evolution.</td>
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<tr>
<td>d.</td>
<td>Summarize the evidence for evolution obtained from fossils, comparative anatomy, biogeography, developmental biology, and molecular biology.</td>
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<td>e.</td>
<td>Define and give examples of homology, homoplasy, and vestigial structures.</td>
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|   | 1. Critical thinking  
2. Communication  
3. Problem solving  
4. Personal & social responsibility |
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<tbody>
<tr>
<td>21</td>
<td>#1, 2, 3, 4</td>
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</tbody>
</table>

### 1. Critical thinking

- Explain the history of how the theory of evolution developed.
- Explain the four premises of evolution by natural selection.
- Explain the synthetic theory of evolution.
- Summarize the evidence for evolution obtained from fossils, comparative anatomy, biogeography, developmental biology, and molecular biology.
- Define and give examples of homology, homoplasy, and vestigial structures.

### 2. Communication

- Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of evolution or how sexual reproduction and mutations produce offspring with different genotypes from either parent. Over many generations the survivors can demonstrate (evolve) new traits that will isolate them reproductively from their ancestors in the following ways:
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### 3. Problem solving

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### 4. Personal & social responsibility

- Upon successful completion of this course, students will be able to demonstrate on course exams knowledge of evolution or how sexual reproduction and mutations produce offspring with different genotypes from either parent. Over many generations the survivors can demonstrate (evolve) new traits that will isolate them reproductively from their ancestors in the following ways:
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  - Define and give examples of homology, homoplasy, and vestigial structures.
## Major Course Requirements

### Method of Determining Final Course Grade

<table>
<thead>
<tr>
<th>Course Grade Requirement</th>
<th>Value</th>
<th>Total</th>
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<tbody>
<tr>
<td>1) Exam 1,</td>
<td>25%</td>
<td>25</td>
</tr>
<tr>
<td>2) Exam 2,</td>
<td>25%</td>
<td>25</td>
</tr>
<tr>
<td><strong>Subtotal: 50% of semester grade</strong></td>
<td><strong>50%</strong></td>
<td><strong>50</strong></td>
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</tbody>
</table>

9) **FINAL EXAM** Grade. Students may earn up to 50% of their semester grade on the final exam.

**Total:** 100%

### Grading Criteria and Conversion:
- A = 90% to 100%
- B = 80% to 89%
- C = 70% to 79%
- D = 60% to 69%
- F = 0% to 59%

### Detailed Description of Major Assignments:
[Demonstrate on the cumulative final exam that they can earn scores of between 70% and 100%. Therefore students can earn up to 50% of the semester grade on the final exam.]

<table>
<thead>
<tr>
<th>Assignment Title or Grade Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score 70%-100%</td>
<td>Standardized Cumulative Final Exams</td>
</tr>
</tbody>
</table>

### Course Procedures or Additional Instructor Policies

#### I. Type of Course:

This is part one of a comprehensive introduction of the concepts of modern Biology Research for junior and senior students majoring in Biology. It covers biological research techniques, biological journal reading and critiques, the research approach, grant proposal preparation and submission, publication preparation and submission, understanding the most recent biological findings, and identifying the most biological research productive laboratories.

#### II. Course Purpose and Objectives:
The purpose of this course is to provide third and fourth year biology majors with an in depth knowledge of biological research that satisfies the prerequisites for entry into health profession schools and graduate biomedical programs. The **outcome expectations for learners** are listed below in section VI. You should read each assigned research paper, class handouts, and course materials and write notes in your **wire binder research notebook** before the instructor teaches the topics in class. Therefore you should be able to perform each of the course **outcome expectations for learners**. Be prepared to ask questions at the beginning of each class about concepts that you did not understand.

The class instructor conducts discussion type classes. These classes require student participation and demonstrations. The instructor will ask students questions, present problems to solve and use audio visuals. You should be prepared to actively participate in class by going to the marker board to demonstrate your knowledge of concepts.

When you meet with your Biology Research instructor for class or study conferences, have **your course notebook and related class materials**. Bring these with you. They will enhance your study sessions.

### III. Course Evaluation Methods:

The University’s Academic Catalog grading policy is used in this course. **All lecture exams will be cumulative** in terms of biology topics tested on. Unit exams are given. Each exam covers all chapters that had been taught from the first day of class to exam day immediately before the exam. The average of all lecture exams and equivalent laboratory exams will constitute fifty percent (50%) of the semester grade. (The average of laboratory practical exams, quizzes, reports, and test will count as an equivalent lecture exam.) **The cumulative final exam will constitute the remaining 50% of the semester grade.**

At least two cumulative exams will be conducted on Wednesdays during the semester. The dates for each exam will be announced at least one week prior to the administration of the exam. However unannounced quizzes may be given by the instructors in order to evaluate how well students are learning the most recent biology concepts taught.

**The final exam is scheduled for Friday, June 26, 2020 at 7:00a.m.**

### Semester Calendar

<table>
<thead>
<tr>
<th>Week One:</th>
<th>Topic Description</th>
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<tbody>
<tr>
<td><strong>Readings:</strong></td>
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</tbody>
</table>
M Lecture 7:00a.m.: Read Chapters 1 and Unit 1 THE CHEMISTRY OF LIFE, Chapter 2 before the Safety/Pre Exam, Scientific Method, Standard Deviations Conversions, and Healthy Living
W Lecture: Read Chapter 2 before the 7:00a.m. lecture Bring Text Book, Essential Elements, compounds, atomic mass, bonds, molecular shape, chemical reactions |
Read Chapters 3 before 7:00 a.m. lecture
Acids and bases, pH scale, buffers, properties of water, Functional groups, formation of bonds, valence electrons, hydrocarbons, isomers, ATP

R Lecture: Read Chapter 4 before the lecture at 7:00 a.m.

Assignment(s):
MTWR Study class materials posted on e-course

Week Two:

Topic Description
Readings:

M Lecture: Read chapter 5 before 7:00 a.m. class
W Lecture: Read Unit 2 THE CELL, Chapter 6 before lecture at 7:00 a.m.
R Exam 1 covers all information presented in class
Lecture: Read Chapter 7 before 7:00 a.m. lecture

Assignment(s):
None

Week Three:

Readings:

M Lecture: Read chapter 8 before the lecture at 7:00 a.m.
W Lecture: Read chapter 9 before the 7:00 a.m. lecture
R Lecture: Read chapter 10 before the 7:00 a.m. lecture
R Lecture: Read chapter 11 for lecture at 7:00 a.m.

Assignments
MTWR Study all class handouts

Week Four:

Readings:

M Lecture: Read UNIT 3 GENETICS, chapter 12 before 7:00 a.m.
W Lecture: Read Chapter 13 before the 7:00 a.m. lecture
R Exam 2 covers all information presented in class
Lecture: Read Chapter 14 before 7:00 a.m. lecture

Assignments
MTWR Study all class handouts

Week Five:

Readings:

M Lecture: Read chapter 15 before 7:00 class
W Review for Final Exam
Friday, June 26, 2020
FINAL EXAM 7:00 a.m. to 11:00 a.m.

Assignments

MAKE-UP EXAMS:

Students are strongly advised to take all exams at the scheduled time. Plan and schedule your activities so that you can be present to take all exams at the scheduled time. Students with
non-valid or non-official excuses for missing an exam will earn a grade of zero (0) for the missed exam. Students may request a make-up exam for one that was missed. However, the instructor will schedule the time and place of the make-up exam which will not interrupt the teaching of the class or delay the complete coverage of the course topics. Students that are scheduled for the make-up exam and miss it will not be provided a second opportunity to take an exam for the original exam missed.

IV. Class Attendance:

The University Attendance Policy requires students to be present for each scheduled class. Students are required to demonstrate their knowledge of each concept of modern biology covered by the course textbook and the instructor. Students with or without official excuses for missing class will be tested and evaluated the same as students who were present for class. However, students attending class have the advantage of being taught knowledgeable information which they are expected to know.

V. Semester Calendar:

*Final Exam: 7:00a.m.-11:00 a.m., Friday, June 26, 2020.

VI. Conduct That Is Not Allowed:

1. Cellular phones, I-Pods, Palm pilots, CD players, Radios, Cameras, Lab top Computers and other sorts of high technology communication instruments are not allowed to be used for any part of this course. These are instruments for cheating. If you are carrying these, they must be turned off and locked in your book bag during class so that they cannot be seen or used. Students that are caught using these or any instruments during class will be charged with cheating and therefore earn a failing grade. See item 4 below concerning cheating.


3. No Eating is Class: Food and beverages are not allowed in the classrooms. Do not bring food into the class room.

4. Cheating on exams, quizzes, reports, or any graded activity is not allowed. Failing grades (zero) are assigned to students that cheat. This classroom has video cameras which records the action of students during class exams. These recordings can be used as evidence of student cheating.
   a. Please go to the rest room before starting your exam. Once a student leaves the classroom during an exam they will not be permitted to return to that exam.
   b. Students are not permitted to communicate with each other during an exam. Therefore students cannot talk to, pass written materials to, or show answers or questions to other students in the class.
   c. Laboratory reports and presentations must be the work of the individual student. Evidence of copying your work from others, including the world wide net, is cheating.
d. Students should read the section on Offenses and Appropriate Disciplinary Actions on page 80 of the current PVAMU web site catalog. This is referred to in section XI below.

e. Students enrolled in this course are not permitted to wear hats, caps, head rags, helmets or any type of head gear in the class rooms for this class. Dress for success. Please do not insult and disrespect the class by violating this cultural practice.

Recommended Student Conduct:

1. Arrive early for class, be seated, and be prepared to participate in class discussions.

2. Eat breakfast and lunch before coming to class.

3. **Dress for success.** Students may also wear medical scrubs and laboratory coats to classes. It is appropriate to wear these in lecture classes because they are worn in the profession of your choice.

4. Start your preparation for the final exam and standardized pre-entry exams such as the MCAT at the beginning of this semester.

5. **Be serious about the final exam.**

Student Support and Success

**John B. Coleman Library**

The library and its partners have as their mission "to provide resources and instructional material in support of the evolving curriculum, as a partner in Prairie View A&M University's mission of teaching, research, and service" and to support the University's core values of "access and quality, diversity, leadership, relevance, and social responsibility" through emphasis on ten key areas of service. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty.

**Center for Academic Support**

The Center for Academic Support (CAS) offers Tutoring via peer tutoring. The services include workshops (i.e., Save My Semester, Recalculate Your Route), seminars (i.e., Tools You Can Use: TI-84), group review sessions (i.e., College Algebra Topic Reviews, GRE Preparation), group study opportunities (i.e., TSIA, HESI, Study Break, Exam Cram), and test-taking strategies (How to take Notes, Study Buddy, 5 Day Study Guide). The Tutoring Center is a nationally certified tutoring program through the National Tutoring Association. The peer tutors are trained and certified by the coordinator each semester. Location: J.B. Coleman Library

**COMPASS**

The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS) is designed to help Prairie View students in their second year and beyond navigate towards graduation by providing the following services: Academic Advisement, Targeted Tutorials for Personalized Learning, Campus-Wide Referrals, and Academic & Social Workshops. Location: J.B. Coleman Library

**Writing Center**

The Writing Center provides student consultants on all aspects of the writing process and a variety of writing assignments. Writing Center consultations assist students in such areas as prewriting, brainstorming, audience awareness, organization, research, and citation. Location: Hilliard Hall 121

University Rules and Procedures

Disability statement (See Student Handbook):
Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

**Academic misconduct (See Student Handbook):**
You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

**Forms of academic dishonesty:**
1. **Cheating:** deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. **Academic misconduct:** tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. **Fabrication:** use of invented information or falsified research.
4. **Plagiarism:** unacknowledged quotation and/or paraphrase of someone else’s words, ideas, or data as one’s own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one’s own work also constitutes plagiarism.

**Nonacademic misconduct (See Student Handbook)**
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor’s ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

**Sexual misconduct (See Student Handbook):**
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

**Attendance Policy**
Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student’s course grade being reduced or in assignment of a grade of “F”. Absences are accumulated beginning with the first day of class.

**Student Academic Appeals Process**
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor’s assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

**Disability statement (See Student Handbook):**
Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.
**TECHNICAL CONSIDERATIONS**

**Minimum Recommended Hardware and Software:**
- Intel PC or Laptop with Windows 7; Mac with OS X; Smartphone or iPad/Tablet with Wi-Fi
- High speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15” monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, Internet Explorer or Firefox

**Note:** Be sure to enable Java & pop-ups

**Participants should have a basic proficiency of the following computer skills:**
- Sending and receiving email
- A working knowledge of the Internet
- Proficiency in Microsoft Word (or a program convertible to Word)
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):**
Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated.

**Technical Support:**
Students should go to https://mypassword.pvamu.edu/ if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Office of Distance Learning at 936-261-3283

**Communication Expectations and Standards:**
Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

**Discussion Requirement:**
Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can take place in a seminar fashion. This will be accomplish by the use of the discussion board. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.