PRAIRIE VIEW A&M UNIVERSITY

SYLLABUS

BIOL 1015 General Biology
Fall 2018

Instructor:	Charcacia T. Sanders
Section # and CRN:	Section#: P08 and CRN: 13988
Office Location:	Elmer E. O'Banion Science Building, Rm 430R
Office Phone:	936-261-3162
Email Address:	ctsanders@pvamu.edu
Office Hours:	Tuesday: 3:30 pm – 5:00 pm Wednesday: 3 pm – 5 pm Thursday: 3:30 pm – 5:00 pm Friday: 10 am – 1 pm
Mode of Instruction:	[Face to Face]
Course Location:	**Lecture**: Elmer E. O'Banion Science Building Rm A103 **Lab**: Elmer E. O'Banion Science Building Rm 315
Class Days & Times:	**Lecture**: TR 2:00 pm – 3:20 pm **Lab:** MW 8:00 am – 10:50 pm (P88) or 1:00 pm – 2:50 pm (P98)
Catalog Description:	BIOL 1015 General Biology: 5 semester hours. Basis of life, cell theory, structure and energy transformation, reproduction, and genetic variability. Origins of diversity of organisms.
Prerequisites:	TSIA Reading College Ready
Co-requisites:	BIOL 1015 is a combined lecture-laboratory course. Students must be enrolled in both a lecture section and a laboratory section
Required Texts:	Campbell Biology, **ELEVENTH Edition**, by Lisa A. Urry. Michael L.Cain, Steven A. Wasserman, Peter V. Minorsky, and Jane B. Reece, ISBN -10: 0-134-09341-0; or ISBN 13: 978-0-134-09341-3 Student Edition
Recommended Texts:	Supplements: (Optional) Study Guide, Eleventh Edition 978-0-134-44377-5/0-134-44377-2 This study aid provides concept maps, chapter summaries, word roots, and a variety of interactive activities, including questions and answers. Inquiry to Action: Interpreting Scientific Papers, Fourth Edition by Ruth V. Buskirk. ISBN 978-0-134-47861-6/ 0-134-47861-4 This guide helps students learn how to read and understand scientific research articles accompanied by questions that help students analyze the articles. Practicing Biology: A Student Workbook, Sixth Edition by Jane Heitz and Cynthia Giffen. ISBN: 978-0-134-48603/ 0-134-48603-X. This textbook offers activities to suit different learning styles.

Student Learning Outcomes:

	Upon successful completion of this course, students will be able to:	Program Learning Outcome # Alignment	Core Curriculum Outcome Alignment
1	Conduct of laboratory investigations using safe, environmentally appropriate, and ethical practices.	5, 6	Ethical Decision Making and Social Responsibility
2	Understand the use of the scientific method during laboratory investigations.	1, 2 3, and 4	Critical Thinking Problem Solving
3	Use critical thinking and scientific problem solving to make informed decisions.	1, 5	Critical Thinking Problem Solving
4	Describe the characteristics of living things that distinguish them from non-living things.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
5	Understand the chemical basis of life and how physical science apply to the study of life.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
6	Demonstrate an understanding of the four types of organic molecules by examine their structure and function.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
7	Relate the properties of life to the structure and function of the cell and describe the cell theory.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
8	Understand how matter and energy flow during life's processes and how that flow is regulated.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
9	Compare the stages of anaerobic and aerobic cellular respiration and understand how cells harvest chemical energy to generate ATP.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
10	Analyze the reactions that take place in photosynthesis that use chemical energy to make organic molecules of food.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
11	Understand the process and regulation of the cell cycle and distinguish the mechanisms by which cells receive, process, and respond to chemical signals.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
12	Examine the how meiosis and fertilization contribute to genetic variation and maintaining species' chromosome count.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
13	Understand how the structure of DNA forms the genetic codes for genes and how a molecule of DNA is copied during DNA replication.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
14	Demonstrate an understanding of the flow of information of from gene to protein and explain how gene mutations affect organisms through their proteins.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
15	Explore how bacteria regulate gene expression in response to different environmental conditions.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge

16	Examine how eukaryotes regulate gene expression to maintain different cell types, including the many roles played by RNA molecules.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
17	Compose an oral scientific presentation using the scientific method	5	Communication, Globalization and Cultural Diversity

This syllabus is subject to change at the discretion of the instructor. Students will be notified of such changes ahead of time via eCourses.

Major Course Requirements

Method of Determining Final Course Grade

	Course Grade Requirement	Value	Total
LECTURE	Lecture Exams	4 Exams	**60%**
	Problem Set Assessments	1 assessment per week	**20%**
	Online Homework Chapter Quizzes	12 Quizzes	**20%**
		Lecture Total:	**100.00%**
LAB	Laboratory Quizzes	12 Quizzes	**10%**
	Laboratory Practical Exams	2 Exams	**50%**
	Instructor Evaluation of Student	1 Instructor Evaluation	**20%**
	Scientific Presentation	1 Oral Presentation	**15%**
	Peer Evaluation	1 Evaluation	**5%**
		Lab Total:	**100.00%**
Extra Credit (contingent upon participation in class and accuracy of responses)		**4 Writing Assignments**	**100**
FINAL GRADE	**Lecture 50% Lab 50%**		

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:

Course Grade Requirement	Description:
Lecture Exams	Student's knowledge of chapter content will be assessed using a combination of multiple choice and free response questions.
Problem Set Assessments	Students will be assessed weekly to determine mastery of content discussed in lecture problem sets.
Homework Quizzes	Students will be given 3 attempts to practice learned concepts using multiple choice questions.
Laboratory Practical Exams	Student's knowledge of scientific practices and concepts gained during lab will be assessed using a combination of multiple choice and free response questions.
Instructor Evaluation of Student	Students will be evaluated by instructor on their performance in lab and field settings.
Peer Evaluation	Students will be evaluated by group members on their performance in lab and field settings.
Laboratory Quizzes	At the beginning of each lab, students' knowledge of previous lab will be assessed using multiple choice questions.

Course Procedures or Additional Instructor Policies

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One of your assignments is REQUIRED to be submitted as an "artifact," an item of coursework that serves as evidence that course objectives are met. More information will be provided during the semester, but for general information, you can visit Taskstream via the link in eCourses.

I. **CLASS FORMAT**: Classes require students to be active members in the learning process. The instructor will ask students questions, present problems to solve and use audiovisuals to demonstrate concepts. Students should be prepared to actively participate in class to demonstrate their knowledge of biological concepts.

II. **MATERIALS**: Students are required to maintain a folder with all class notes, handouts, and reports. Number 2 pencils for exams and at least 4 SCANTRON forms 882-E for each lecture exam.

Students are required to maintain a lab notebook with all complete record of procedures (the actions you take), the reagents you use, the observations you make (these are the data), and the relevant thought processes that would enable another scientist to reproduce your observations.

III. **EXAMS & QUIZZES**: You are required to take exams and quizzes as scheduled with the rest of your class. **No make-up exams or quizzes will be given automatically**. If you cannot take the exam/quiz during the scheduled time you must contact the instructor immediately to discuss your options (e-mail or phone within 7 hours of missing the exam/quiz and the make-up must be taken within 72 hours after the test have been administered. Do not assume that you are eligible to take a make-up. It is up to the instructor decide if a student is eligible for a make-up exam pending the submission of the appropriate documentation. Appropriate documentation must be supplied before any make-up will be scored (please discuss with instructor what is considered an appropriate documentation). Make-ups are will be given in a free-response format during a designated day and time at the discretion of the instructor.

IV. **CLASS ATTENDANCE**: Regular and punctual class attendance is expected. Student absences will be recorded from the first day the class meets. In case of absence, it is the student's responsibility to contact the instructor. Students absent on official school business are entitled to make up coursework missed. In all other cases, the instructor will judge whether the student will be permitted to make up work and will decide on the time and nature of the makeup. However, the student is expressly responsible for any work missed regardless of the cause of the absence. The student must discuss such work with the instructor and should do so immediately on returning to school. If students do not appear at the prearranged time or meet the prescribed deadline for makeup work, they forfeit their rights for further makeup of that work. Students who stop attending class for any reason should contact the instructor and the Registrar‘s office to officially withdraw from the class. Failure to officially withdraw may result in a failing grade for the course.

V. **CLASS CONDUCT**:

A. The use of electronic devices in class is as follows and may be changed at the discretion of the instructor: Smartphones/Laptops/Tablets may be used for taking notes, participating in interactive teaching platforms, and following along with the PowerPoints. No chatting, texting, or engaging in social media will be allowed. If you violate your instructor's trust in this policy, you will no longer be allowed to bring your electronic devices into class. All electronic devices must be turned off and placed out of sight during exams and quizzes so that they can’t be seen or used. Anything recorded in class (audio or video) may not be distributed or published without instructor's permission."

B. No cheating on exams, quizzes, reports, or any graded activity. Cheating will result in a grade of a zero.

C. Students enrolled in this course are not permitted to wear hats, caps, head rags, helmets or any type of hear gear in the class rooms for this course. Dress for success.

TENTATIVE SEMESTER CALENDAR

TIMELINE		LECTURE	PROBLEM SET/CASE STUDY
Week One:	**Aug 26**		
Readings:		Chapter 1: Evolution, the Themes of Biology, and Scientific Inquiry Chapter 2: The Chemical Context of Life	"A Case in Point: From Active Learning to the Job Market
Assignment(s):		Chapter 1 Homework Quiz (Aug 30)	"Bonding with the Tutor: How to Stick Together in Chemistry"
Week Two:	**Sept 3**	**Sept 2: Labor Day (University Closed)**	
Readings:		Chapter 2: The Chemical Context of Life Chapter 3: Water and Life	Problem Set: Covalent & Hydrogen Bonds
Assignment(s):		Chapter 2 Homework Quiz (Sept 6)	"Do Grasshoppers Sweat?"
Week Three:	**Sept 9**	**Sep 11: Final Day to Drop/Withdraw from Course(s) without Academic Record (A Financial Record will still exist)**	
Readings:		Chapter 3: Water and Life Chapter 4: Carbon and Molecular Diversity of Life Chapter 5: The Structure and Function of Large Biological Molecules	"Acids, pH, and Buffers: Some Basic Chemistry for Biological Science"
Assignment(s):		Chapter 3 Homework Quiz (Sept 13) Chapter 4 Homework Quiz – relevant parts (Sept 13)	"A Curious Mission: An Analysis of Martian Molecules"
Week Four:	**Sept 16**		
Readings:		Chapter 5: The Structure and Function of Large Biological Molecules	Problem Set: Biological Molecules
Assignment(s):		Unit 1 Exam Chapters 1-3, 5 & relevant part of 4 (Sept 18) Chapter 5 Homework Quiz (Sept 20)	"Newsflash! Transport Proteins on Strike!"
Week Five:	**Sept 23**		
Readings:		Chapter 6: A Tour of the Cell Chapter 7: Membrane Structure and Function	"Agony and Ecstasy"
Assignment(s):		Chapter 6 Homework Quiz (Due: Sept 27)	Problem Set: Cellular Transport
Week Six:	**Sept 30**		
Readings:		Chapter 7: Membrane Structure and Function Chapter 8: An Introduction to Metabolism	"Why is Patrick Paralyzed?"
Assignment(s):		Chapter 7 Homework Quiz (Due: Oct 4)	
Week Seven:	**Oct 7**		
Readings:		Chapter 8: An Introduction to Metabolism	"Why is Patrick Paralyzed?"
Assignment(s):		Chapter 8 Homework Quiz (Due: Oct 11)	Problem Set: Biochemical Reactions and Enzymes

Week Eight:	**Oct 14**	**Oct 17 - Oct 19: Mid-Semester Examination Period**	
	Readings:	Chapter 9: Cellular Respiration and Fermentation	The Mystery of the Seven Deaths: A Case Study in Cellular Respiration
	Assignment(s):	Unit 2 Exam Chapters 7-8, & relevant parts of Chapter 6 (Oct 14)	
Week Nine:	**Oct 21**		
	Readings:	Chapter 9: Cellular Respiration and Fermentation	Problem Set: Glycolysis, Respiration and Fermentation
	Assignment(s):	Chapter 9 Homework Quiz (Oct 25)	
Week Ten:	**Oct 28**	**Nov 1: Final Day to Withdraw from Course(s) with Academic Record ("W")**	
	Readings:	Chapter 10: Photosynthesis	"Killing Chloroplasts: Herbicides Targeting Photosynthesis"
	Assignment(s):	Chapter 10 Homework Quiz (Nov 1)	
Week Eleven:	**Nov 4**		
	Readings:	Chapter 10: Photosynthesis Chapter 11: Cell Communication	Problem Set: Chemiosotic Principle & Photosynthesis
	Assignment(s):	Unit 3 Exam Chapters 9,10 & relevant parts of Chapters 4, 6, and 8 (Nov 6)	"Diabetes and Insulin Signaling"
Week Twelve:	**Nov 11**		
	Readings:	Chapter 11: Cell Communication	Problem Set: Cell Communication
	Assignment(s):	Chapter 11 Homework Quiz (Nov 15)	
Week Thirteen:	**Nov 18**		
	Readings:	Chapter 12: The Cell Cycle	"But I'm Too Young! A Case Study of Ovarian Cancer"
	Assignment(s):	Chapter 12 Homework Quiz (Nov 22)	
Week Fourteen:	**Nov 25**	**Nov 28 – 29: Thanksgiving Holidays (University closed)**	
	Readings:	Chapter 12: The Cell Cycle	
	Assignment(s):		
Week Fifteen:	**Dec 2**		
	Readings		Problem Set: Cell Cycle
	Assignment(s):	Final: Unit 4 Exam Chapters 11, 12 & relevant parts of chapters 4 and 6 (TBA)	

BIOL 1015 LABORATORY

This course includes experimental design, laboratory and/or field projects, and interpretation and presentation of data from individual projects. The course is designed to allow students to engage in research in the biological sciences in their undergraduate careers working under the direction of a member of the biology faculty while collaborating with peers. In this particular course, students will conduct research on soil and antibiotics.

TIMELINE		
Week One:	**Aug 26**	Lab Safety, Policies, and Procedures; BIOL 1015 Pre-Test
Week Two:	**Sept 3**	Scientific Measurements; The Scientific Method: "Rabbit Island"
Week Three:	**Sept 9**	Keeping a Notebook; Aseptic technique; Sub-Culturing bacteria; Analyzing Bacteria
Week Four:	**Sept 16**	"Antibiotic Resistance: Can We Ever Win?" Calculations and Dilutions: Making solutions and media; Make plates for bacteria
Week Five:	**Sept 23**	Design Experiment Culturing Method: Students will use a soil sample from the instructor to devise a method to transfer microbes from soil into a medium in the lab. Each student is expected to analyze and evaluate initial platings to establish best practice protocols for future experiments.
Week Six:	**Sept 30**	Design culture conditions: Students will evaluate serial dilutions plates and devise a way to maximize biodiversity; design culture conditions to grow sample; calculate CFU/g soil.
Week Seven:	**Oct 7**	Isolating Microbes from Soil: Students will define criteria to isolate "unique" or diverse single colonies from dilution plates and write protocols; pick and patch single colonies onto master plate to generate a bacterial isolate catalogue.
Week Eight:	**Oct 14**	BIOL 1015 Lab Practical Exam I
Week Nine:	**Oct 21**	Retrieving and Reading Scientific Journals: Students will select an ESKAPE pathogen to do research on and present to class. They will learn why the ESKAPE pathogens are relevant to the antibiotic crisis, the search for new antibiotics, and drug development.
Week Ten:	**Oct 28**	Metabolic Testing: Students will test selected colonies for enzyme activity, photosynthesis, and cell respiration
Week Eleven:	**Nov 4**	Antibiotic Screens: Students will do an initial screen of soil isolates against a Gram-positive and Gram-negative bacteria. After antibiotic producers are identified, they will be selected for further testing.
Week Twelve:	**Nov 11**	Test Isolates Against ESKAPE-safe: Students will retest the recently identified antibiotic producers against all test strains (all safe-ESKAPE relatives) to assess the breadth of bioactivity
Week Thirteen:	**Nov 18**	Oral Presentations
Week Fourteen:	**Nov 25**	Thanksgiving Holiday – No Lab
Week Fifteen:	**Dec 2**	BIOL 1015 Lab Practical Exam II

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.