

## BIOL 1025 General Biology Spring 2019

**Instructor:** Charcacia T. Sanders  
**Section # and CRN:** Section#: P05 and CRN: 28143  
**Office Location:** Elmer E. O'Banion Science Building, Rm 430R  
**Office Phone:** 936-261-3162  
**Email Address:** [ctsanders@pvamu.edu](mailto:ctsanders@pvamu.edu)

**Office Hours:** Tuesday: 9:30 am – 11 am  
 Wednesday: 3 pm – 5 pm  
 Thursday: 9:30 am – 11 am  
 Friday: 9 am – 12 pm

**Mode of Instruction:** [Face to Face]

**Course Location:** **Lecture:** New Science Building, Rm A104  
**Lab:** New Science Building, Rm 315

**Class Days & Times:** **Lecture:** TR 12:30 pm – 1:50 pm  
**Lab:** MW 8:00 am – 9:50 am

**Catalog Description:** BIOL 1015 General Biology: 5 semester hours.

The Continuity of Life (Genetics & Evolution), The Diversity of Life, and Ecology.

**Prerequisites:** TSIA Reading College Ready

**Co-requisites:** BIOL 1025 P65 laboratory section. BIOL 1025 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**

<b>1</b>	Conduct of laboratory investigations using safe, environmentally appropriate, and ethical practices.	5, 6	Ethical Decision Making and Social Responsibility
<b>2</b>	Understand the use of the scientific method during laboratory investigations.	1, 2 3, and 4	Critical Thinking Problem Solving
<b>3</b>	Use critical thinking and scientific problem solving to make informed decisions.	1, 5	Critical Thinking Problem Solving
<b>4</b>	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
<b>5</b>	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
<b>6</b>	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
<b>7</b>	Explore how bacteria regulate gene expression in response to different environmental conditions.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>8</b>	Demonstrates knowledge of the terms phenotype, genotype, locus, allele (dominant/recessive), homozygous and heterozygous.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>9</b>	Applies knowledge of Mendel's principles of segregation and independent assortment to solve genetic problems involving monohybrid, dihybrid and test crosses	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>10</b>	Demonstrates knowledge of how DNA replicated.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>11</b>	Applies knowledge of DNA structure to describe the flow of information in cells from DNA – RNA – Protein(s)	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>12</b>	Understands the differences between gene expression and gene regulation in prokaryotes vs. eukaryotes.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>13</b>	Describe the structure and function of the various bacterial cell structures.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>14</b>	Trace the evolution of prokaryotes and relate environmental conditions to the diversity of these life forms.	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>15</b>	Explore how ecologists apply biological knowledge to predict the global consequences of human activities and to conserve Earth's biodiversity	1, 2, and 4	Critical Thinking Problem Solving Discipline Specific Knowledge
<b>16</b>	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

17 Compose an oral scientific presentation using the scientific method	5	Communication, Globalization and Cultural Diversity
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***This syllabus is subject to change at the discretion of the instructor. Students will be notified of such changes ahead of time via eCourse.***

**Major Course Requirements**

**Method of Determining Final Course Grade**

Course Grade Requirement	Value	Total
Lecture Exams	5 Exams (100 points each)	<b>500</b>
Homework Quizzes	16 Quizzes (15 points each)	<b>240</b>
Scientific Presentation	1 Oral Presentation (90 points each)	<b>100</b>
Laboratory Practical Exams	2 Exams (100 points each)	<b>200</b>
Laboratory Reports	4 Laboratory Reports (15 points each)	<b>60</b>
Laboratory Quizzes	12 Quizzes (8 points each)	<b>100</b>
<b>Total:</b>		<b>1200</b>
<b>Extra Credit (contingent upon participation in class and accuracy of responses)</b>	<b>4 Writing Assignments (25 points each)</b>	<b>100</b>

**Lecture 60% Lab 40%**  
**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:**

Assignment Title or Grade Requirement	Description:
Lecture Exams	Student's knowledge of chapter content will be assessed using a combination of multiple choice and free response questions.
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.
Laboratory Reports	Students will write a detailed report of lab findings and discuss outcomes.
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:** 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

audiovisuals to demonstrate concepts. Students should be prepared to actively participate in class to demonstrate their knowledge of biological concepts.

- A. **LECTURE:** In addition to PowerPoint slides, this portion of the course will be facilitated using Case Studies allowing students to apply biological concepts to real world scenarios. Students are also encouraged to complete POGIL activities prior to lecture as these will help students prepare for class discussions.
  - B. **LAB:** This portion of the course will be facilitated using investigations and problems sets providing opportunities to enhance knowledge and develop skills and best practices.
- II. **MATERIALS:** Students are required to maintain a folder with all class notes, handouts, and reports. Number 2 pencils for exams and at least 5 SCANTRON forms 882-E for each lecture exam.
- III. **EXAMS:** You are required to take the test as scheduled with the rest of your class. **No make-up exams will be given automatically.** If you cannot take the exam during the scheduled time you must contact the instructor immediately to discuss your options (e-mail or phone within 7 hours of missing the test). \* Do not assume that you are eligible to a make-up. It is up to the instructor decide if a student is eligible for a make-up exam. Appropriate documentation must be supplied before any make-up exam will be scored (please discuss with instructor what is considered an appropriate documentation). Make up exam will be given during a designated day and time.
- 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.

### SEMESTER CALENDAR (subject to change)

TIMELINE	LECTURE	LABORATORY
<b>Week One:</b> Jan 14		
Readings:	Chapter 13: Meiosis & Sexual Life Cycles	<b>Lab Policies &amp; Procedures</b>
Assignment(s):	POGIL: Meiosis Chapter 13 Homework Quiz	<b>Lab 1: Meiosis</b>
<b>Week Two:</b> Jan 21	<b>Jan 21: Martin Luther King Jr Day (University Closed)</b>	

	Readings: Chapter 14: Mendel and the Gene Idea	<b>Lab 2: Patterns of Inheritance: Punnett Squares and Pedigrees</b>
	Assignment(s): Lab 1 Quiz Case Study: Bloodline: A Human Genetic Case Chapter 14 Homework Quiz	
<b>Week Three:</b>	<b>Jan 28</b>	
	Readings: Chapter 15: The Chromosomal Basis of Inheritance	<b>Lab 2: Patterns of Inheritance: Punnett Squares and Pedigrees</b>
	Assignment(s): Case Study: Bloodline: A Human Genetic Case POGIL: DNA Structure and Regulation Chapter 15 Homework Quiz	
<b>Week Four:</b>	<b>Feb 4</b>	
	Readings: Chapter 16: The Molecular Basis of Inheritance Chapter 17: Gene Expression: From Genes to Protein Chapter 20: DNA Tools & Biotechnology (20.1, 20.2)	<b>Lab 3: DNA Structure &amp; Technology</b>
	Assignment(s): Lab 2 Quiz Case Study: FOXP2 and Speech: A Gene Expression Case POGIL: Gene Expression – Transcription Chapter 16 Homework Quiz	
<b>Week Five:</b>	<b>Feb 11</b>	
	Readings: Chapter 17: Gene Expression: From Genes to Protein Chapter 20: DNA Tools & Biotechnology (20.2)	<b>Lab 3: DNA Structure &amp; Technology</b>
	Assignment(s): <b>Unit 1 Exam: Chapters 13 – 15</b> Lab 3 Quiz Case Study: FOXP2 and Speech: A Gene Expression Case POGIL: Gene Expression – Translation POGIL: Genetic Mutations	<b>Lab 4: Transgenic Fly Virtual Lab</b>
<b>Week Six:</b>	<b>Feb 18</b>	
	Readings: Chapter 18: Regulation of Gene Expression Chapter 20: DNA Tools & Biotechnology (20.3)	<b>Lab 5: Microarrays &amp; Gene Expression</b>
	Assignment(s): Lab 4 Quiz Lab 5 Quiz (Online) POGIL: Control of Gene Expression in Prokaryotes Chapter 17 Homework Quiz	
<b>Week Seven:</b>	<b>Feb 25</b>	
	Readings: Chapter 21: Genomes & Their Evolution	<b>Lab 6: Molecular Evidence for Whale Evolution</b>
	Assignment(s): <b>Lab Practical I (Labs 1 – 5)</b> Case Study: Molecular Evidence for Whale Evolution (Lecture/Lab Activity) Chapter 18 Homework Quiz	

**Week Eight: Mar  
4**

Readings: Chapter 22: Descent with Modification: A Darwinian View of Populations

**Lab 7: Making of the Fittest: Natural Selection and Adaptation**

Assignment(s): **Unit 2 Exam: Chapters 16 – 20 (Relevant parts of 20)**  
Lab 6 Quiz  
POGIL: Selection and Speciation (Model 1)  
Case Study: The Evolution of Human Skin Color  
Chapter 21 Homework Quiz

**Week Nine: Mar  
11**

**Spring Break University Closed**

Readings:

Assignment(s):

**Week Ten: Mar  
18**

Readings: Chapter 23: Evolution of Populations

Assignment(s): Lab 6 Quiz  
POGIL: Selection and Speciation (Model 3)  
Case Study: The Evolution of Human Skin Color  
Chapter 22 Homework Quiz

**Lab 7: Making of the Fittest: Natural Selection and Adaptation**

**Week Eleven: Mar  
25**

Readings: Chapter 24: The Origin of Species

**Lab 8: The Origin of Species: Lizards in an Evolutionary Tree**

Assignment(s): Lab 7 Quiz  
POGIL: Selection and Speciation (Model 2)  
Case Study: Blood Suckers! A Case Study on Evolution and Speciation  
Chapter 23 Homework Quiz

**Week Twelve: Apr  
1**

Readings: Chapter 26: Phylogeny & the Tree of Life

**Lab 8: The Origin of Species: Lizards in an Evolutionary Tree**

Assignment(s): **Unit 3 Exam: Chapters 21 – 23**  
POGIL: Phylogenetic Trees  
Case Study: TBA  
Chapter 26 Homework Quiz

**Week Thirteen: Apr  
8**

Readings: Chapter 25: The History of Life on Earth (25.3)  
Chapter 27: Bacteria and Archaea (27.1, 27.2)

**Lab 9: Prokaryotes**

Assignment(s): Lab 8 Quiz  
Case Study: TBA  
Chapter 25 & 27 Homework Quiz

**Week Fourteen: Apr  
15**

Readings: Chapter 53: Population Ecology

**Lab 10: Ecosystems**

Assignment(s): **Unit 4 Exam: Chapters 24, 26, Relevant Parts of Chapters 25, 27**

Lab 9 Quiz  
POGIL: Population Growth  
POGIL: Population Distribution  
Case Study: TBA

**Week Fifteen: Apr  
22**

Readings Chapter 54: Community Ecology

Assignment(s): Lab 10 Quiz  
POGIL: Ecological Pyramids  
POGIL: Ecological Relationships  
Case Study: The Return of *Canis lupus*?

**Lab 10: Ecosystems**

**Week Sixteen: Apr  
29**

Readings

Assignment(s) **Lab Practical II (Labs 6 – 10)**

**Final Exam – Unit 5 Exam: Chapters 53, 54 (TBA)**

**PVAMU Academic Calendar Spring 2019  
Important Dates**

Date	Event
January 14	First Day of Class
January 21	Dr. Martin Luther King Day (University Closed)
Jan 30	Last day to drop/withdraw from course(s) without academic record. A financial record will still exist.
February 11	Census Day
March 8	Mid-semester examination
March 11 – 16	Spring Break (University Closed)
March 19	Mid-semester grades due by 11:59 p.m.
March 27	Founders Day/Honors Convocation
March 27	Last day to apply for spring graduation (ceremony participation)
March 29	Last day for withdrawal from course(s) with record ("W")
April 19	Good Friday (Student Holiday)
April 30	Last Class Day
May 1 – 7	Final Examinations
May 11	Spring Commencement

**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 accomplished 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.