SYLLABUS

BIOL 3034 General Microbiology
Spring 2019

Instructor:	Victoria Mgbemena, Ph.D.
Section # and CRN:	Section P02/ 26483 Section P62/ 26486 Section P03/ 28241 Section P63/ 28317
Office Location:	E.E. O'Banion Science Building room 430AC
Office Phone:	936-261-3171
Email Address:	vemgbemena@pvamu.edu
Office Hours:	By appointment
Mode of Instruction:	Face to Face
Course Location:	Lecture room 101, 122/ Lab room 308
Class Days & Times:	MW (Lab) 9:00-10:50 a.m. MW (Lecture) 12:00-12:50 p.m. TR (Lecture) 8:00-8:50 p.m. TR (Lab) 11:00-12:50 p.m.
Catalog Description:	Morphology, physiology, classification, and cultivation of the microorganism relevant to agriculture, pre-medicine, and industry. Prerequisites: CHEM 1033, BIOL 1015, or equivalent. Laboratory fee required.
Prerequisites:	Undergraduate level CHEM 1033 Minimum Grade of C and Undergraduate level BIOL 1015 Minimum Grade of C
Co-requisites:	None
Required Texts:	Lecture Textbook: Prescott's Microbiology, 10th Edition © 2017, Joanne Willey and Linda Sherwood and Christopher J. Woolverton. Publisher: McGraw-Hill **ISBN:** 1259281590 **Recommended resource:** Students may order the **Connect** (ISBN: 1259669939) program through McGraw-Hill to get the following support, which provides the following: • Additional recommendation: digital experience • Adaptive learning tools to focus your study time • Integrated course eBook • Supporting how-to videos, interactives and extra practice materials Visit https://www.mheducation.com/highered/product/prescott-s-microbiology-willey-sherwood/M9781259281594.html for more information. This resource is HIGHLY recommended for additional practice.
Recommended Materials:	Lab notebook, Blue / black pens, #2 lead pencils, colored pencils, notebook paper, calculator, access to computer / printer

Student Learning Outcomes:

	Upon successful completion of this course, students will be able to:	Program Learning Outcome # Alignment	Core Curriculum Outcome Alignment
1	Demonstrates knowledge of the basic principles and concepts of life at the microscopic level as it pertains to microbes.	Critical Thinking	Critical Thinking
2	Comprehends the theoretical concepts in microbiology so that they may use this as a basis for future studies; whether it be in Agriculture, Biology, Commercial Foods, Dietetics, Medical Technology, Medicine, Dentistry, Nutrition, Public Health and Biological Research.	Critical and Analytical Thinking	Critical Thinking Communication Teamwork
3	Analyze the interrelationships among the microorganisms and between microorganisms and higher living forms.	Critical Thinking	Critical Thinking
4	Demonstrate the proper techniques and procedures to handle microscopic living organisms, many of which are pathogenic.	Discipline Specific Knowledge	Communication
5	Incorporation of Novel Technology including Microplate Analysis and Tissue Culture techniques to understand the role of microorganisms in infection and disease.	Integration of Broad Knowledge	Team Work

Purpose of Course: Microorganisms are important life forms to the welfare and the endeavors of humans. This is especially true in fields of study such as Agriculture, Biology, Commercial Foods, Dietetics, Medical Technology, Medicine, Dentistry, Nutrition, Public Health and Biological Research. Therefore, persons whose major or minor interests are in one of these areas, or in a related area, should benefit with information about microorganisms and microscopic living forms. This course is designed to provide the information and explanations about microorganisms.

Major Course Requirements

Method of Determining Final Course Grade

Course Grade Requirement	Value	Total
1) 1 Practical Lab Exam	100 points	100 points
2) 1 Comprehensive Final Lab Exam (if needed)	(100 points)	(100 points)
3) 4 hourly Lecture Exams	100 points	400 points
4) 4 Lab Quizzes	10 points	40 points
5) 3 Lecture quizzes	10 points	30 points
6) 1 Final Exam	100 points	100 points
7) Research Project	100 points	100 points
8) Attendance	100 points	100 points

Total: total points earned/870 X 100 = percentage

Grading Criteria and Conversion:
A = 89.45% to 100%
B = 79.45% to 89.44%
C = 69.45% to 79.44%
D = 59.45% to 69.44%
F = 0% to 59.44%

This grading criteria is set and will not change under any circumstances

Course Procedures or Additional Instructor Policies

Taskstream

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One of your assignments may be considered 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.

Attendance Policy: The students are expected to be **present and on time** for all scheduled lectures and laboratory periods. During these times lectures will be given, laboratory demonstrations will be conducted and exercises will be assigned and all pertinent questions answered. If the student incurs an excused absence with written documentation for the reason, he/she will make arrangements to make-up the missed assignment (s) within two class days upon return to the classroom. The validity of the excuse is the responsibility of the instructor.

Absences: While it is understood that you will attend all lectures and laboratories, there are times when you may be absent. Excused absences are those that are due to illness, attendance at university approved functions, civil or military services, or family bereavements. Documentation **must** be provided to me, the instructor prior to the event or immediately upon (the day of) the student's return to class. Only verifiable, excused absences will be accepted so that the student may make up his / her work – lecture exams and laboratory assignments. If appropriate and verifiable documentation is provided, the student will have **until the end of the week** to make up the assignment.

Evaluation for the Lecture: In the lecture there will be four examinations and a comprehensive final examination, each will be worth 100 points. The examinations will cover those topics covered in class and from the textbook and laboratory exercises. A portion of the exam will be done on a Scantron form. You must provide **your own** #2 pencil and the Scantron form.

T**he mid-term exam will be Wed., March 6th and Thurs., March 7th. The mid-term grade** will be calculated according to points earned up until that date**.** The final exam will not be cumulative. The **final exam period** for this course is scheduled from **May 1-May 7.** The exact date will be provided by the instructor prior to the final exam week. **Please do not make plans to travel before May 7th until the final exam date has been announced**. The instructor will be unable to accommodate any exams before the scheduled exam period, so students should plan accordingly.

Quizzes: The instructor will provide instructions for preparing for each lecture and lab quiz. Each individual quiz is worth 10 pts each. The lowest **lecture quiz** grade will be dropped at the end of the course. Two lab quiz dates have been provided in the syllabus; the remaining two will be unannounced "pop" quizzes. **Lab quizzes WILL NOT** be dropped.

Evaluation for the Laboratory: There will be one laboratory practical worth 100 points. If the practical is missed for any reason, excused or unexcused, the student will have to take a **comprehensive laboratory final** at the end of the course. The topics for that exam will be discussed by the instructor. Students will also be evaluated based on their research project, worth 100 points.

Other Assignments: The instructor reserves the right to include extra credit opportunities as she deems necessary.

Microbiology **BIOL 3034-P02-P03**
Instructor: Dr. Victoria Mgbemena
Daily Schedule for Spring 2019

The following schedule is **TENTATIVE** only. The academic schedule is subject to change.
The student is advised to read the assigned chapter for each class day **before** he/she comes to class. Dr. Mgbemena reserves the right to change the calendar as she deems fit for the class.

Date (week)	Lecture	Lab
January 14 –17	**CH 1 Microbiology**	Laboratory Safety and Introduction to the Lab Chapter 2 Prescott's Microbiology pg 22-41 Slide observation
Jan 22–24	**CH 3 Bacterial Cell Structure**	Nutrient Broth and Nutrient Agar Preparation Aseptic Transfers and Inoculation Methods Chapter 7 (7.5-7.6) Prescott's Microbiology
Jan 28 –31	**CH 6 / Ch 7 Viruses and Microbial Growth** **Exam 1: on Ch 1, Ch 3 Jan 30/31**	Wet Mount Investigation Chapter 5 Eukaryotic cell structure Section 5.1-5.3 Prescott's Microbiology
Feb 4–7	**CH 7 Microbial Growth** Lecture Quiz 1: Feb. 6,7	Microbial Growth Chapter 7 Prescott's Microbiology **Assign Projects**
Feb 11–14	**CH32 Microbial Interactions**	Viruses Chapter 6 Prescott's Microbiology **Projects** **Lab Quiz 1: Feb. 13/ 14**
Feb 14–17	**CH 32 and 35 Microbial Interactions and Pathogenicity and Infections** Lecture Quiz 2: Feb 16/17	Simple Stain Gram Stain Biochemical tests Projects Literature Review
Feb 25–28	**CH 35 Pathogenicity and Infections** **CH 36 Clinical Microbiology**	Control of Microorganisms Chapter 8 Prescott's Microbiology **Lab Practical Exam** **-Feb 27/28**
March 4–7	**CH 36 Clinical Microbiology**	Control of Microorganisms Antimicrobial Chemotherapy Chapter 8 and 9 Prescott's Microbiology (cont'd.)
	Exam 2: Ch 6, Ch 7 Mar 6/7	**Projects**
March 18–21	**CH 37 Epidemiology and Public Health Microbiology** Lecture Quiz 3: Mar 20/21	**Projects**

April 1–4	**CH 18 Bioinformatics Lab** **Exam 3: Ch 32, 35 Apr. 3/4**	**Projects**
April 8-11	**CH 39 Human Disease caused by Bacteria** Lecture Quiz 4: Apr 10/11	Bioinformatics Lab Chapter 18 (18.3) Case Study **Projects**
April 15-18	**CH39 Human Disease Caused by Bacteria/Ch 41 Microbiology of Food**	Clinical Case Study **Projects** **Lab Quiz 4: Apr. 17/18**
April 22-25	**Exam 4: Ch 18 (select sections) 37, 39 Apr. 22/23**	Presentations—Apr. 24-25
April 29-30	**Study/Review Days**	Presentations—Apr. 29-30 **Comprehensive Lab Final, Apr. 29-30**
May 1-7	**Final Exam, Ch 1, 6, 35, 36, 37, 39**	

Current Events will be discussed throughout the entire semester

Research Project

At the beginning of class, students will be divided up into groups of two to four and will conduct a microbiology-related project during the semester which will incorporate the use of microbiological techniques, reagents and the scientific method. Students will report their findings in a research paper. Students will also present their data and research at the end of the course through PowerPoint or other media. A student wanting to conduct an individual project must clear their project idea and design with the instructor before-hand.

Authentic Research Experience in PVAMU Microbiology: Authentic Research Experience in PVAMU Microbiology is a modular approach to integrating research into the general biology or microbiology curriculum. The goal is to support cutting edge research-based projects in Microbiology that involves diverse subject matter in the area of, Botany, Chemical Engineering, Genetics, Computer Science and Technology. Microbiology is a subject matter that intercepts every biological discipline and is important in the day-to-day activities. In efforts to increase retention of material and improved the overall educational experience in the classroom, the projects will provide each registered student in the class an authentic research approach to learning the concepts in the class.

Sample projects

Project 1: Microbiome Project (Environmental Microbiology). The focus of our project evaluates the microbiome that exist in the environment to determine the causal relationship that the soil microflora has on all life.

Project 2: ImageJ Application study on Disease progression. The goal of this activity seeks to prepare the next generation of life science majors with a particular emphasis of utilizing computational techniques with biological data sets for careers in biomedical research.

Project 3: The Impact of Genetically Modified Organisms on Grocery Shopping Behavior. This project will determine the presence of Genetically modified organisms (GMOs) which is defined as organisms (i.e. plants, animals or microorganisms) where the genetic material (DNA) has been altered impact on grocery

shopping behavior. Students will test several food samples from the area grocery stores for the presence of GMOs.

Project 4: Rhizobium Impact on Plant Growth. Symbiotic relationships in microbiology are significant and teaching the concepts from the textbook alone does not illustrate the full concept. Previous studies with a former student evaluated if the present of light played a role in the inhibition of production of the nodules and has set an platform for further investigations. This intersection of Botany and Microbiology will opens the dialogue of interdisciplinary research and the importance of symbiotic relationships.

Project 5: Evaluation of novel organic compounds antimicrobial properties. The study will allow for students to evaluate the ability of novel compounds to inhibit microbial growth. The students will also evaluate the chemical composition of the compounds to establish mechanism of action.

Project 6: Develop of App for Microbiology concepts and theories. The students will seek ways to improve material retention and comprehension of microbiological content by developing an interactive app.

Project 7: Microbial Science Policy, Communication and Outreach. Students will focus on one concept in microbiology and present sustainable ways to present the concept to lay people. They will also construct a mock bill that addresses educational, agricultural or environmental reform in microbial science.

(SAMPLE ABSTRACT (1st Place Poster Presentation Spring 2017) The Forgotten Bacteria

Kadejah Franklin, Yaseen Maleki, Thao Huynh, Jameira Quintanilla and Quincy C. Moore III, Ph.D.
BIOL 3034 Microbiology , Department of Biology, Prairie View A & M University Prairie View, TX 77446

The Men's and Women's restroom exit doors on all four floors of the E.E. O' Banion building were evaluated to find the prevalence of which gender had more bacteria and type of bacteria. This experiment was performed over a total of 5 weeks. A total of 8 sample collection were collected, two for each floor, one from each restroom (Men, women). There were two bacterial isolates collected from all restrooms, based on color most were Staphylococcus and the other were unknown. A total of 4 tests were performed on these bacteria: Gram stain, Catalase, Oxidase, and Temperature effects on microbial growth. The bacteria for both genders saw more growth at temperatures higher than 25 degrees, with the only exception of men's decreased in colony growth at 37 degrees. All were gram positive cocci, except for one, it was gram positive bacilli. 83 % were catalase positive, and 83 % oxidase positive.

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, CampusWide 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, if applicable, 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.

Academic Calendar – Spring 2019 *subject to change without notice

Jan 10 - Jan 11	Regular Registration Period
Jan 14 , Mon.	First Class Day. Instruction Begins **Tuition payment deadline is 5:00pm for all students who registered for the spring semester.**
Jan 14-Jan 16 Mon. – Wed.	Late registration for the spring semester far all students who have not yet registered. To complete registration, students must pay by 5:00pm on Wednesday, February 6.
Jan 14 - Jan 18 Mon. – Fri.	Drop/Add Period
Jan 21 , Mon.	Dr. Martin Luther King Day (University Closed)
Jan 30 , Wed.	12th Class Day (Census Date) Last Day to Withdraw from Course(s) without Academic Record Late Deadline for Spring 2018 Graduating Undergraduate Students to Submit Application for Tuition Rebate
Jan 31-Mar 29 **Thurs.-Fri.**	Withdrawal from Course(s) with Academic Record ("W") Period
Feb. 06 **Wed.**	Tuition payment deadline is 5:00 pm for all students who late registered and ad/drop for spring semester
Feb 11	20th class day
Feb 12 – Apr 30	Submit application for Tuition Rebate for spring graduation undergraduate candidates

Tues.-Tues.	
Mar 07 - Mar 09 **Thurs. – Sat.**	Mid-Semester Examination Period
Mar 11 - Mar 16 **Mon. – Sat.**	Spring Break
Mar 15 , Fri.	Spring Break (University Closed)
Mar 18 , Mon.	Instruction Resumes
Mar 19, Tues.	Mid-Semester Grades Due
Mar 19 , Tues.	60% of Term
Mar 27, Wed.	Founders Day/ Honors Convocation **Last day to apply for spring graduation (ceremony participation)**
Mar 29 **Friday**	**Last day for withdrawal from course(s) with record ("W")**
Apr 08 - Apr 12 Mon' - Friday	**Priority Registration for continuing students** Summer 2019 and Fall 2019 semesters
Apr 15 – May 24 **Mon. – Fri.**	Pre-registration for all students for the summer 2019 and fall 2019 semesters
Apr. 19 **Friday**	Good Friday (**Student Holiday)**
Apr 29 – Apr. 30 **Mon.- Tues.**	Course Review Days [Classes must convene and instructors will prepare students for Final Exams]
Apr. 30 **Tues.**	Last Class Day for Spring 2019 Semester Last Day to Withdraw from the University (from All Courses) for the Spring 2019 semester with record. **Last day to apply for degree conferral only for spring graduation (no ceremony participation or name listed in program)**
May 01 - May 07	Final Examination Period Wednesday through Tuesday
May 09 , Thurs.	Final Grades Due for Graduating Candidates by NOON
May 11 , Sat.	Commencement
May 14 , Tues.	Final Grades Due for all other students by 11:59 pm

ARTICLE PREPARATION GUIDELINES

For the paper

Manuscript title

The title of 25 words or less should be a brief phrase describing the contents of the paper.

Author Information

Complete names and affiliation of all authors, including contact details of corresponding author (Telephone, Fax and E-mail address). Author names are to appear on title page only.

Abstract

The abstract should be informative and completely self-explanatory as described above. Abbreviations should be avoided. The preferable format should accommodate a description of the research background, methods, results and conclusion. Following the abstract, a list of five keywords.

Introduction

The introduction should provide a clear statement of the study, the relevant literature on the research subject and the proposed methodology.

Materials and Methods

The materials and methods section should be a detailed description of the design of the research and methodology. This should include the materials or participants, comparisons, interventions and types of analysis conducted. Only new procedures should be described in detail. Previously published procedures should be cited and important modifications of published procedures should be mentioned briefly.

Results

The results section should provide complete details of the experiment that support the conclusion. The results should be written in the past tense when describing findings in the authors' experiments. Previously published findings should be written in the present tense. Results and discussion may be combined or written separately.

Acknowledgement

This section should include acknowledgment of people, grants, funds, etc.

Note: *Authors are should use headings/subheading for sections per the above instructions.*

References

Only published or accepted manuscripts should be included in this list. Meetings abstracts, conference talks, and/or conference papers that have been submitted but not yet accepted should not be cited. All personal communications should be supported by a letter from the relevant authors. References should be listed using APA formatting (see https://owl.english.purdue.edu/owl/resource/560/01/ for citation examples etc.).

Figure, captions and tables should be within of the manuscript.

Examples

https://owl.english.purdue.edu/owl/resource/560/01/

Tables

Tables are to be double-spaced throughout. Each table should be supplied with a heading and a legend.

Note: *If necessary the author may be requested to submit the same manuscript in a .doc file and put tables, figures and illustrations on a separate page in order to aid in successful journal formatting.*

Figures

All images must be at intended display size with high resolution. Additionally, image files must be cropped as close to the actual image as possible. Arabic numerals should be used to designate figures and upper case letters for their parts (Figure 1). Include a legend with a title and include sufficient description so that the figure is understandable without reading the text of the manuscript. Information given in legends should not be repeated in the text.