Instructor Information

Instructor: Dr. Shuttleworth
Office: (adjunct instructor, no office)
Mailbox: Natural Sciences Office Box 213
Hours: By Appointment before or after class
Phone: (no PTC phone)
Email: kshuttleworth@uaptc.edu

*All emails and telephone calls will receive a response within two business days.

Chair: Mr. T. Russell (501) 812-2705 trussell@uaptc.edu
Dean: Dr. M. Bryant-Howe (501) 812-2342 mbryanthowe@uaptc.edu

*If your emails and telephone calls do not receive a response within two business days, the appropriate chain of command is above.

Course Information

Lecture: In class lecture Tuesday and Thursday 6:00 to 7:15 PM

Lab: In lab Tuesday and Thursday 7:25 to 8:50 PM

Catalog Description

BIOL 2401. Microbiology ACTS # BIOL 2004 This course is an introductory course in microbiological concepts, including the study of bacteria, viruses, fungi and protozoa as they affect the human body. This course is designed for majors in health professions programs. Prerequisite: a) Completion of BIOL 1401 with a grade of “C” or better or b) completion of high school AP/IB Biology with an A or B, completion/testing out of all developmental education classes, and permission of the Department Chair. 3 lecture hours, 3 lab hours. (4 credit hours/special course fee) (H)

Course Materials


Mission Statement
University of Arkansas – Pulaski Technical College provides access to high-quality education that promotes student learning and enables individuals to develop to their fullest potential.

Institutional Learning Outcomes and General Education

UA-PTC supports a college-wide institutional learning assessment program which concerns effective instructional methods and promotes student learning achievement by assessing:

1. Communication
2. Critical Thinking
3. Cultural Awareness
4. Information Literacy
5. Professionalism
6. Quantitative Literacy
7. Technology Literacy

For more information, please consult the following website: https://uaptc.edu/sla

Department / Discipline or Program Learning Outcomes
(not available at time of writing)

Student Learning / Course Outcomes

ACTS

BIOL2004 Introductory Microbiology

General Description:
Introductory course in microbiology. Includes microbiological concepts including the study of bacteria, viruses, fungi, and protozoa as they affect the human body. Designed for majors in health professions programs. Lab required.

Expected Student Learning Outcomes:
The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the following:

- History of microbiology
- Biological and chemical concepts, including metabolism, as applied to microorganisms
- Basic classification, characteristics and behavior of microorganisms
- Host-microbe interactions that result in infection
- Fundamentals of immunology
- Principles of asepsis, sterilization, and disinfection
- Principles of epidemiology as they apply to the effect of microorganisms on the human population
- General methods for the prevention and control of infectious disease transmission
• Microbial growth
• Microbial genetics

The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the following lab activities:

• Use of microscope
• Preparation of stains
• General laboratory techniques, including but not limited to aseptic technique, streak plate, and identification methods

PTC Course Learning Outcomes

The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the following:

Lecture Objectives:
• Compare and contrast prokaryotic and eukaryotic cell structure and function.
• Understand and explain basic prokaryotic sugar metabolism, protein synthesis, and control of protein function and synthesis.
• Describe the general principles of bacterial genetics, including prokaryotic DNA replication.
• List the differences between viruses and prokaryotic cells.
• Classify viruses by morphology and method of replication
• State and list basic infection control procedures.
• Explain how bacteria attain resistance to drugs.
• Compare treating viral infections with bacterial infections.
• Explain the importance of epidemiology. Discuss epidemiological techniques and give examples of types of studies.
• Compare and contrast epidemics, pandemics, and, endemic diseases.
• Define and give examples of mechanical vectors, biological vectors, vehicles, fomites, and reservoirs of infection.

Laboratory Objectives:
• Demonstrate proper use and care of laboratory equipment, especially the microscope.
• Demonstrate aseptic technique.
• Culture microorganisms using liquid and solid media.
• Perform biochemical tests used in the process of identifying microorganisms.
• Perform staining techniques used in the process of identifying microorganisms.
• Demonstrate ability to understand and interpret metabolic tests used in the process of identifying microorganisms.
• Be able to isolate organisms from mixed cultures and from different environments.
• Interpret antibiotic susceptibility tests and disinfection tests.

Policies

Report a Complaint or Concern

UA-PTC takes very seriously complaints and concerns regarding the institution. Most complaints or concerns of a specific nature should be initiated and resolved at the campus level through normal college processes whenever possible. UA - Pulaski Technical College receives and resolves complaints using a variety of methods. To report a complaint or concern, please follow the link below.

https://www.uaptc.edu/report-a-concern-complaint

UA-PTC Attendance Policy

Education at UA-PTC requires students’ active involvement in the learning process. Thus, students are expected to attend all classes and actively engage in all learning assignments and/or opportunities provided in their classes. Class attendance should be treated as mandatory by all students as attendance will be taken by all instructors during the first two weeks of class. Additionally, a written policy on student attendance that is tied to course objectives and included in a course syllabus will be provided for each course by instructors.

Departmental Attendance Policy

(See UA-PTC policy.)

Course Policies

The UA-PTC Catalog rules and regulations will be enforced in this course at all times. Please consult the following website for more information: https://www.uaptc.edu/catalog

Professional behavior is required. Punctual attendance and intelligent participation are expected. Particulars as determined by the instructor are detailed in the paragraph below.

Appropriate behavior is expected for all communications, including any notes, email messages, or telephone conversations. Some guidelines for communication are included in this syllabus to help you.

Classroom Policies for Dr. Shuttleworth’s Microbiology Class:

You shall not disturb other students by continually talking out of turn or by otherwise disrupting the educational environment. You must cease disruptive behavior at the request of the instructor, or you will be asked to leave the classroom.
Questions are encouraged, but the instructor will not waste other students' time to answer questions on material you missed because you came in late.

Food and drink (and gum) are allowed in the classroom (but NOT in the laboratory) provided that you do not disturb others (i.e., no crinkly papers, no crunchy food, no foods with permeating smells, no gum smacking) and provided that you clean up after yourself.

During regular classes cell phones and pagers MUST be turned off or to vibrate. You may only take emergency calls. If you receive an emergency call – you must take it outside of class.

Phones must be turned COMPLETELY OFF for all quizzes and exams.

Lab Policies:
- NO FOOD OR DRINKS IN THE LABORATORY AT ANY TIME!!!!
- No children or visitors in the lab at any time.
- No sandals in the laboratory. You must wear close-toed shoes.

Grading Policy

Letter grades will be based on the following scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 to 100%</td>
<td>A</td>
</tr>
<tr>
<td>80 to 89%</td>
<td>B</td>
</tr>
<tr>
<td>70 to 79%</td>
<td>C</td>
</tr>
<tr>
<td>60 to 69%</td>
<td>D</td>
</tr>
<tr>
<td>0 to 59%</td>
<td>F</td>
</tr>
</tbody>
</table>

*Half-point values, e.g., 89.50 will be rounded up.*
IF YOU ARE CAUGHT CHEATING ON AN EXAM
- EITHER GIVING OR GETTING INFORMATION -

YOU WILL RECEIVE A ZERO FOR THAT EXAM

Furthermore, depending on the infraction, you may receive an “F” for the entire course, in addition to the zero on the exam.

Late penalties: The instructor reserves the right to assess late penalties on homework and the literacy assignment. Late penalties are 20% for each week beyond the due date. Late penalties will not be assessed if the student has an excused absence.

Administrative drop:

The purpose of administrative drop is not to enable a student to maintain a high grade point average despite the student’s end-of-semester realization that he/she is not doing well in the course. If the student is concerned that his/her class grade will have a detrimental effect on his/her grade point average, it is the student’s responsibility to either seek help or to drop the class prior to the student drop deadline.

Point Distribution:

There is only 1 grade for this class and it includes both lecture work and laboratory work. Seventy-five percent (75%) of your grade will be based on lecture and 25% on laboratory.

The lecture portion of your grade will include 4 exams and a comprehensive final. The total points for all 4 tests will equal approx. 440 points. Each test will, therefore, be approx. 110 points. The comprehensive final will be worth approx. 235 points. NOTE: Alternative to your final exam being worth 235 points: your instructor may create a 5th test worth approximately 35 points and make the final exam worth approximately 200 points.

There will be 1 planned quiz at approx. 15 points. There will also several (approx. 4) homework assignments each worth approx. 20 points. Additionally, you will be given a short assignment to meet PTC’s literacy requirement. This will be worth 20 points.
Thus the breakdown of points for the lecture portion of your grade is (approximately):

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Estimated Points Each</th>
<th>Estimated Points Total</th>
<th>Estimated % of Lecture</th>
<th>Estimated % of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTC literacy</td>
<td>1</td>
<td>20</td>
<td>20</td>
<td>2.7%</td>
<td>2%</td>
</tr>
<tr>
<td>Homework</td>
<td>(4)</td>
<td>(20)</td>
<td>80</td>
<td>10.7%</td>
<td>8%</td>
</tr>
<tr>
<td>Quizzes (closed book)</td>
<td>1</td>
<td>(15)</td>
<td>15</td>
<td>2.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Epidemiology exam</td>
<td>1</td>
<td>35</td>
<td>35</td>
<td>4.7%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Exams</td>
<td>4</td>
<td>100</td>
<td>400</td>
<td>53%</td>
<td>40%</td>
</tr>
<tr>
<td>Comprehensive final</td>
<td>1</td>
<td>235</td>
<td>200</td>
<td>26.7%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td></td>
<td></td>
<td>750</td>
<td>100%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Tests are mixed format (multiple choice, definitions, fill-in-the-blank, short answer, and essays). Using a mixed format ensures high grades are earned grades. Typically each short answer question will be worth between 2 and 12 points and will need to be answered with a level of detail appropriate for the point value of the question.

The PTC's information literacy requirement assignment will involve using materials other than your text book to answer a series of related questions about specific microorganisms.

The homework assignments will cover material that is presented in the text, but due to time constraints, will not be covered in lecture. The chapters from which homework may be derived include, but are not necessarily limited to, the chapters on eukaryotic microbes, on the immune system, and on human diseases.

The laboratory portion of your grade will be based on a combination of laboratory quiz(zes), laboratory notebooks, participation, and a PTC-mandated lab practical/quiz.

Thus the breakdown of points for the laboratory portion of your grade is (approximately):
<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Estimated % of Laboratory Grade</th>
<th>Estimated % of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>laboratory notebook</td>
<td>average of all exercises</td>
<td>35%</td>
<td>8.75%</td>
</tr>
<tr>
<td>laboratory quizzes</td>
<td>2</td>
<td>40%</td>
<td>10%</td>
</tr>
<tr>
<td>Mandatory lab practical with quiz (PTC-wide; standardized)</td>
<td>1</td>
<td>10%</td>
<td>2.5%</td>
</tr>
<tr>
<td>class participation</td>
<td>1</td>
<td>15%</td>
<td>3.75%</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>25.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Missed Exams:**
Any student who misses an exam will have to take the missed exam – or a substitute exam - prior to the last week of classes. Substitute exams may, at the discretion of the instructor, be all essay exams. Missed exams may only be made up PROVIDED THAT you have a legitimate reason (illness or emergency) for missing the original exam and provided that you have written documentation of that reason. If you do not have a documented, legitimate reason for missing an exam, a grade of zero will be assigned for that exam. The determination of “legitimate reason” is at the discretion of the instructor.

**If you miss a 2nd exam, the make-up exam will be an all-essay substitute exam**
- PLUS there will a substantial penalty -
  an automatic deduction of 20 points and no bonus points;
  the highest grade possible on a 2nd make-up exam would be 80% instead of 100% plus bonus points.
You cannot make-up more than 2 exams.

This policy enforced to prevent students from gaining an unfair advantage by taking extra days to study – days which are not available to other students.
Missed laboratories:

**Laboratory attendance is mandatory** unless you have a legitimate, documented excuse (illness or emergency situation). The determination of “legitimate excuse” is at the discretion of the instructor and the instructor will **not** grant a “legitimate excuse” for more than **4 (maximum)** of the laboratory sessions for any 1 student. If a student does not have a legitimate excuse or has missed more the 4 excused labs, an F will be given for the laboratory exercise(s) missed.

**Students who miss a laboratory are still required to submit the written part of the exercise.** You must talk to the instructor to see what you must turn in.

Due to the nature of laboratory work, you will usually not be able to make up a missed laboratory. HOWEVER – you will still be responsible for the information presented in the laboratory, the concepts, and the experimental design. You will be expected to know these details for the lab quizzes and/or lab practicals. If you know ahead of time (e.g., scheduled surgery for your spouse or child) that you will miss a laboratory, this **must** be discussed with your instructor PRIOR to your absence.

**Extra Credit:**

Extra credit projects are **not available**. Some bonus points (usually between 5 and 15 percent of the value of the test questions) **may** be available on in-class exams and on the final exam, but special-credit projects will not be granted. If the student knows he/she “must” get a certain grade, whether it be to keep his/her scholarship or to get into another program, it is the student’s responsibility to (a) ensure he/she is following ALL requirements and recommendations – including, but be no means limited to, the completion of assigned readings prior to lecture and laboratory; (b) seek help, and/or (c) drop the class by the student drop deadline.

There will not be bonus points on quizzes, homework, or laboratory work.

Laboratory exercise due dates will be announced for each laboratory. Typically labs will be collected at the beginning of the laboratory period that occurs immediately after the completion of the exercise. A portion of the laboratory exercises will be graded. You will NOT know, in advance, which portion(s) are going to be graded. Thus, you will need to complete the entire laboratory assignment to ensure you get a good grade in your laboratory exercises.
The instructor reserves the option to assess a late penalty (20% per week) for exercises not turned in on time and to not grade (i.e., give a zero for) any exercise that has already been returned to the class. (Adjustments will be made for anyone granted an excused absence.)

Most of the laboratory exercises in microbiology require 2 lab periods. Experiments are set up on the 1st of the 2 labs for the week and results read 2 days later - the 2nd of the 2 labs for the week. Often the lab notebook questions cannot be completed until the results have been read. Due dates for lab exercise will be given during labs; typically labs will be collected the 1st lab period after all results have been read. This will usually, but not always, be 1 week from the date the experiments were set up.

Any changes to this syllabus will be announced to the class.

* Instructors have one week to provide feedback and post grades for all assignments unless otherwise noted by a departmental policy that has been approved by the Dean of the School.

In an online class, eligibility for Financial Aid is based on student participation. Logging into the course does not constitute participation. For purposes of roster certification, students must complete a gradable attendance artifact.

**Academic Integrity**

It is expected that all students who attend UA-PTC conduct themselves in a manner appropriate for the college experience. Academic integrity is a vital component of collegiate behavior. The UA-PTC catalog states, “The gaining of knowledge and the practice of honesty go hand-in-hand.”

The catalog also states, “The responsibility and authority of initiating discipline arising from violations of the rules against dishonesty during the process of the course are vested in the instructor of that course.”

The complete Academic Integrity Policy is in the UA-PTC code of conduct.

**Accommodation Policy**

Services for Students with Disabilities: UA-PTC is committed to fulfilling all federal requirements as stated in the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the American with Disabilities Amendments Act (ADAAA) of 2008. Accommodations are available to students who have documented disabilities. Students who request accommodations must register with the Disability Services Office (Main Campus: 501-812-2738 or South Campus: 501-812-2862) and must provide current and relevant documentation.
Students requesting accommodations should inform the instructor at the beginning of the course or as soon as accommodations are approved. It is the student's responsibility to provide their Accommodation Letter to the instructor. Accommodations are not retroactive and will only be provided once your instructor receives the Accommodation Letter.

**Student Code of Conduct**

All students are expected to abide by the UA-PTC Student Code of Conduct. For the full Student Code of Conduct, access the most current version of the UA-PTC Academic Catalog. [http://uaptc.azurewebsites.net/docs/default-source/course-catalog/2017-18-academic-catalog.pdf?sfvrsn=a08a3038_2](http://uaptc.azurewebsites.net/docs/default-source/course-catalog/2017-18-academic-catalog.pdf?sfvrsn=a08a3038_2)

**Sexual Misconduct**

No person at UA-PTC will, on the basis of gender, be excluded from participation in, be denied benefits of, or be subjected to sex discrimination, sexual harassment or sexual misconduct under any education program or activity. All college administrative policies and procedures regarding sex discrimination, sexual harassment, and sexual misconduct are in compliance with Title IX. Students who feel they are victims of sexual misconduct should contact the UA-PTC Title IX Deputy Coordinator for Students:

Michelle Anderson, Director of Student Life and Leadership
Campus Center Building Room 216
501-812-2756
manderson@uaptc.edu

**Course Evaluations**

Students may be asked to evaluate their instructor and course near the end of the semester. These student evaluations are very important to the improvement in the quality of instruction and course materials. All results are anonymous and shared with the faculty only after the semester is over and grades have been posted.

**Information Literacy**

UA-PTC is committed to the Information Literacy Competency Standards for Higher Education as established by the Association of College and Research Libraries and endorsed by the National Forum on Information Literacy. Therefore, all courses will incorporate an information literacy component so that, by graduation, all students will be able to recognize the need for information, then locate, evaluate, synthesize, and communicate information in an ethical manner. Information literacy encompasses critical thinking, research, media, technology, health, business, and visual literacy skills to produce lifelong learners who can make informed decisions in the workplace and in their personal lives.
## Tentative Lecture Schedule/Course Content

All dates are subject to change.

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Jan 10, 2019</td>
<td>No class.</td>
</tr>
</tbody>
</table>
| **2** Jan. 15 & 17 | Syllabus  
Chapter 1: The Microbial World and You (plus Koch’s Postulates)  
Chapter 2: Chemical Principles (review)  
*(Chapter 3: Observing Microorganisms through a Microscope will be covered in lab.)* |
| **3** Jan. 22 & 24 | Chapter 2: Chemical Principles (review, continued) |
| **4** Jan. 29 & 31 | Lecture Quiz (on all material covered to date)  
Chapter 4: Functional Anatomy of Prokaryotic and Eukaryotic Cells  
(instructor will focus on prokaryotes; eukaryotes were covered in Biol 1401) |
| **5** Feb. 5 & 7 | Self-study/online (Epidemiology)  
*(Instructor Out of Town for Conference)* |
| **6** Feb. 12 & 14 | Chapter 4: continued  
Chapter 5: Essential Concepts of Metabolism |
| **7** Feb. 19 & 21 | **Exam I (Chapter 1, 2, and 4)**  
Chapter 5 Essential Concepts of Metabolism continued |
| **8** Feb. 26 & 28 | Chapter 6: Microbial Growth  
*NOTE: Chapter order in lecture not the same as order in book.* |
| **9** Mar. 5 & 7 | Chapter 6: Microbial Growth (continued)  
Chapter 8 Microbial Genetics |
| **10** Mar 12 & 14 **MIDTERM** | **Exam II (Chapters 5 and 6, Metabolism and Growth)**  
Chapter 8 Microbial Genetics (continued) |
<p>| Mar. 19 &amp; 21 | <strong>SPRING BREAK (March 17 – 24)</strong> |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 26 &amp; 28</td>
<td>Chapter 13: Microbial Genetics (continued)</td>
</tr>
<tr>
<td>Mar. 26 &amp; 28</td>
<td>Chapter 13: Viruses</td>
</tr>
<tr>
<td>Apr. 2 &amp; 4</td>
<td>Chapter 13: Virus, continued</td>
</tr>
<tr>
<td>Apr. 9 &amp; 11</td>
<td><strong>EXAM III</strong></td>
</tr>
<tr>
<td>Apr. 9 &amp; 11</td>
<td>Chapter 7: The Control of Microbial Growth</td>
</tr>
<tr>
<td>Apr. 16 &amp; 18</td>
<td>Chapter 7: The Control of Microbial Growth</td>
</tr>
<tr>
<td>Apr. 23 &amp; 25</td>
<td>Chapter 20: Antimicrobial Drugs</td>
</tr>
<tr>
<td>Apr. 30 &amp; May 1</td>
<td><strong>EXAM IV Chapter 7 and 20</strong></td>
</tr>
<tr>
<td>May 9</td>
<td><strong>OPTIONAL REVIEW AVAILABLE</strong></td>
</tr>
<tr>
<td>May 9</td>
<td>at normal class time on Tuesday May 7</td>
</tr>
<tr>
<td>May 9</td>
<td>Comprehensive Final Exam on May 9</td>
</tr>
</tbody>
</table>

**Final Exam Schedule:**  Thursday May 9, 2019.

Disclaimer: This schedule is a guide for the semester. The instructor reserves the right to amend the schedule as necessary.

Laboratory Schedule will be provided as part of the Laboratory.
Course Agreement Form

Read, complete, and return to instructor:

I have read the course syllabus for Dr. Shuttleworth’s Microbiology class at Pulaski Technical College, and I understand its content. I also understand the rules for the class, and I will follow and abide by these rules, including those relating to attendance, assignments, grading criteria, plagiarism, and behavior.

________________________________________
Semester

____________________________________
Date

____________________________________
Print name

____________________________________
Signature

____________________________________
UA-UA-PTC Email address

____________________________________
Telephone