

**BIOLOGY 2420**  
**APPLIED MICROBIOLOGY**

**4 CREDIT HOURS**

**FALL 2017**

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**Section:** 01 Lecture

**Time:** 9:30-10:50am TTr

**Bldg:** LDB

**Room:** 214

**Course Coordinator and Lecturer:**

Dr. Jordan Clark

Office in LDB 148, phone (936) 294-2656

Email [jmc124@shsu.edu](mailto:jmc124@shsu.edu)

Office hours: TBA

**Head Lab Instructor:**

Kallie Davis

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**Prerequisites:** A minimal grade of C or better in Human Anatomy (BIO 2401), Human Physiology (BIO 2402) and a course in introductory chemistry are required. This course may not be applied for biology major credit and is open only to students pursuing degrees in nursing, physical therapy, physical education, or other related health fields.

**NOTE: A minimum GPA of 3.0 (B average) in science courses is required to even apply to Nursing School. Students admitted to Nursing School have an average GPA of 3.4. So, if you want to get into Nursing School, obtain no less than a B in all of your pre-nursing courses. In addition, nursing schools tend to look more favorably on applicants who do not retake any single course more than once, or have more than two different courses retaken.**

**Course Description:** This course provides broad exposure to the field of microbiology, focusing mainly on bacteriology (with a brief introduction to virology, parasitology, and mycology). The major topics include growth of microorganisms, bacterial structure, physiology, and diseases of body systems. The laboratory component will teach the basics of culture and identification of bacteria, and microbial ecology, with an exploratory format. Since the course is primarily directed at pre-nursing and other preallied health majors, while covering the basics of microbiology, we will focus on medical microbiology, infectious disease prevention, and public health.

**Course learning objectives** Students in microbiology will:

1. learn the major terms and concepts of microbiology

2. understand the major structures in bacteria and their functions
3. gain a working understanding of bacterial physiology and morphology
4. understand the basics of medical microbiology
5. acquire basic laboratory skills in microbiology, especially bacterial identification
6. understand how microbiology applies to diseases of specific body systems
7. develop critical thinking skills related to experimental design, interpretation of scientific data and theories, and published medical studies

My approach to science education is concept based learning. You'll be required to know some basic facts in order to understand connections, but it's most important for me to teach you how to **learn** microbiology. To better help you make lasting connections, class time will be spent both with lecture and active learning exercises.

### **Required Course Texts:**

*Nester's Microbiology: A Human Perspective* 8th Ed., by Anderson et al, pub by McGraw Hill.  
McGraw Hill Connect Code will provide an E Text and LearnSmart

*General Microbiology and Applied Microbiology Biology 3470 and 2420 Laboratory Manual* (2016) is available only from Eagle Graphics, at 1304 Sam Houston Avenue. This is a loose leaf version, so purchase a three-ring binder to hold it (1.5 or 2 inch diameter suggested). This custom manual is produced for this course, so is not available elsewhere. Proceeds from the sale of this manual go to student scholarship funds.

*Squarecap.com* subscription.

Recommended reading: *Get Ready for Microbiology*, by Garrett and Penn, pub by Benjamin Cummings, ISBN 0-321-59592-0. A copy of this book is on reserve at the University Library so you can take a look at it free of charge, please take advantage of this resource. In addition, you can find this book in the Study Area of the Pearson Mastering Microbiology website.

NOTE: I'll be posting handouts, lecture notes, chapter objectives, assignments, schedule, etc. on Blackboard. You should plan to access the course site often (daily). The course schedule is continuously updated.

**Attendance and Expectations:** As University students, I expect you to behave professionally (cell phones off in class, prompt attendance, respect to other students, etc). Lecture attendance is required for this semester. Any in-class group work may be graded. I will not offer any make-up assignments for in-class work that is missed. You will not be allowed to leave lecture once activities have started unless there is an emergency. You must notify me of this emergency before leaving. Failure to do so will result in a zero for all assignments due that week.

You are required to purchase a Connect code and register by the specified deadline. You will be permitted a two-week free trial if needed. Failure to register on time will result in zeroes for all missed Connect assignments **without any possibilities for make-up assignments**.

You will be allowed to take make-up exams upon review of absence. You must notify me before the exam or **no later than 8hrs** after the missed exam. You must also provide verification by means of official University activity or medical excuse. Failure to abide by any one of these attendance policies will result in a zero for the missed exam without the opportunity to take a make-up. The date, time and form of the make-up exam will be decided by the instructor. The final exam must be taken on the scheduled date. **You may not take an early or later final exam.**

**How to do well:** With an intense science course such as this, you must study and keep up as you go along. Studying the day before the exam only is inadequate. You must read the book before lecture, take notes in lecture, and go over those notes after lecture, preferably with a study group. In lecture and class discussions, as well as the examinations, I assume that you have read the textbook. If my lectures seem too fast or “over your head,” then read the text more carefully. My job is not to discuss every detail in the textbook, but instead to explain the important concepts clearly. Making outlines of chapters in the book is an excellent tool to help you gain the most from the text. In addition, there are study skills workshops provided by the SAM Center. Finally, I’ve provided for you some great links in Blackboard in the folder “Study Tips” to give you ideas about how to effectively study for the class.

### Course Evaluation

Assessment	Weight(%)
Exams x 4	30
Post Class HW	15
Quizzes	10
Project	15
Lab	30

Should an error be made in scoring exams, I must be informed within a week of the time exam grades are posted. Corrections will not be considered after that period.

Assignments will be completed online at the **McGraw Hill Connect** website created for the class, thus registration for the site is required. If you do not complete assignment during the assigned time, there will be no make-up or alternate assignment. Lecture quizzes are taken in class. There are no make-up quizzes. If you miss lecture, then you will receive a zero for that quiz. In addition, there may be take-home or in-class active learning projects, given to enhance understanding of lecture topics. If you are not in class on the day of an in-class assignment, no make-up assignment will be given.

There will be no extra credit assignments offered. I **do not** offer any exam study guide, however, there will be a review on study techniques and strategies. These strategies will be discussed periodically leading up to each exam.

## UNIVERSITY POLICIES

### ACADEMIC DISHONESTY:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

***Cell phones must be put on vibrate and put away during class, and absolutely during exams.*** If your cell phone is out during testing days, then your exam will be taken up and you will receive a “0” for the test, and face possible additional disciplinary action.

### **STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY:**

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: “a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20....” A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. For a complete listing of the university policy, see:

[http://www.shsu.edu/~vaf\\_www/aps/documents/861001.pdf](http://www.shsu.edu/~vaf_www/aps/documents/861001.pdf)

### **STUDENTS WITH DISABILITIES POLICY:**

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail [disability@shsu.edu](mailto:disability@shsu.edu)). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help

you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

<http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf>

### VISITORS IN THE CLASSROOM:

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

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**Classroom Rules of Conduct:** Cell telephones must be turned off and put away before class begins. Students are prohibited from reading, sleeping, texting, talking at inappropriate times, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive may be reported to the Dean of Students for disciplinary action in accordance with university policy. No audio or visual recording of the lecture may take place without the express written consent form signed by both

### Tentative Schedule

The following is **tentative**. Weeks for the exams will be followed as closely as possible, but they are ***subject to change***. It is **YOUR** responsibility to attend class, check Blackboard often, and be aware of schedule changes.

Week	Lecture	Notes
8-24	Introduction and Registration	
<b>Week 2</b>		
8-29	Ch 3: Microscopy and Cell Structure	
8-31	Ch 3: Microscopy and Cell Structure cont.  Ch 4: Dynamics of Microbial Growth	
<b>Week 3</b>		
9-5	Ch 4: Dynamics of Microbial Growth cont.  Ch 5: CTR of Microbial growth	
9-7	Ch 5: CTR of Microbial growth	

<b>Week 4</b>		
9-12	<b>Exam 1</b>	
9-14	Ch 10: ID and Classify Microbes	
<b>Week 5</b>		
9-19	Ch 10: ID and Classify Microbes	
9-21	Ch 11: Diversity of Bacteria and Archaea	
<b>Week 6</b>		
9-26	Ch 11: Diversity of Bacteria and Archaea	
9-28	Ch 12: Eukaryotic Members	
<b>Week 7</b>		
10-3	Ch 13. Viruses, Viroids, Prions	
10-5	Ch 13. Viruses, Viroids, Prions	
<b>Week 8</b>		
10-10	<b>Exam 2</b>	
10-12	Ch 20: Antimicrobial medications	
<b>Week 9</b>		
10-17	Ch 21: Respiratory System Infections	
10-19	Ch 21: Respiratory System Infections	
<b>Week 10</b>		
10-24	Ch 22: Skin Infections	
10-26	Ch 22: Skin Infections	
<b>Week 11</b>		
10-31	Ch 24. Digestive System Infections	
11-2	Ch 24. Digestive System Infections	
<b>Week 12</b>		

11-7	<b>Exam 3</b>	
11-9	Ch 25. Blood and Lymphatic System Infection	
<b>Week 13</b>		
11-14	Ch 25. Blood and Lymphatic System Infection	
11-16	Ch 26: Nervous System Infections	
<b>Week 14</b>		
11-21	Ch 26: Nervous System Infections	
<b>Holiday</b>		
<b>Week 15</b>		
11-28	Ch 27. Genitourinary Tract Infections	
11-30	Ch 27. Genitourinary Tract Infections	
<b>Week 16</b>		
	Finals	