BIOL 3444: General Microbiology
Summer 1st 5 Weeks 2019

Instructor Information

Instructor(s):
Whitney Tholen, PhD

Office Number:
Life Sciences 344

Office Telephone Number:
817-272-1511

Email Address:
Whitney.Tholen@uta.edu

Faculty Profile: Tholen Mentis Profile

Office Hours:
Tuesday & Thursday 1:30-3:00 PM or be appointment
Ensure you have an email confirmation/Outlook invite if you wish to make an appointment

Course Information

Section Information: BIOL 3444-001

Time and Place of Lecture Meetings:
Monday-Thursday 10:30 AM -12:30 PM

Description of Course Content:
Fundamental principles of microbiology including the structure and function of microbial cells and their activities in nature. Bacteria are a focus of this course but some material will cover eukaryotic microbes. Bacteria will be used in the laboratory to provide training and experimental methodology. Formerly listed as BIOL 2451; credit will not be granted for both. Prerequisite: BIOL 1441, 1442, and two credits of Chemistry.

Student Learning Outcomes:
At successful completion of this course students will be able to:

- Describe the evidence that supports endosymbiotic theory
- Explain how Bacteria and Archaea exhibit extensive, and often unique, metabolic diversity.
- Explain why the traditional definitions of species using reproductive isolation do not apply to Bacteria and Archaea.
- Describe how bacterial structures (e.g., peptidoglycan, lipopolysaccharides, flagella, etc.) stimulate a non-specific immune response.
- Draw inferences about evolutionary relatedness of organisms based on phylogenetic trees
- Explain microorganisms and their environment interact with and modify each other. Describe how the cell structure of Gram-negative and Gram-positive cells leads to a given Gram stain result.
- Predict whether the mechanism of action for a given antibiotic would affect Gram-positive and/or Gram-negative cells.
- Describe how mutations and horizontal gene transfer, together with selective pressure, can lead to a rise of antibiotic resistance (or xenobiotic bioremediation or spread of virulence mechanisms).

- Describe how human practices have led to the increase of antibiotic resistance.
- Explain how microbial metabolism is important to relevant societal issues
- Describe how very high (or low) temperatures, pH, or salt concentration inhibit growth.
- Describe how genetic variations can impact microbial functions.

Required Textbooks and Other Course Materials:

1. OpenStax Microbiology Print ISBN: 1938168143
2. UTA Microbiology Lab Manual
3. Goggles

Recommended: Microbiology Laboratory Theory & Application, Essentials ISBN: 1-64043-032-6

Students can access an electronic version of the OpenStax textbook for free or purchase a hard copy from the UTA bookstore. The lab manual and goggles are also available for purchase through the bookstore.

Out-of-Class Requirements:
Beyond the time in the classroom, students will be expected to commit 2-3 hours minimum of study from the textbook and lecture notes. Additionally, students are required to attend each lab session and will be expected to spend a minimum of two hours per week of their own time in open hours to check on cultures post inoculations, complete unknowns, and practice techniques covered in lab.

Open lab hours for the summer sessions are Mon-Fri, 8:00am – 10:30am.

Grading Information

Descriptions of major assignments and examinations:
The lecture component of the course includes 4 exams and an optional Final exam. See below for the grading breakdown.
The lab component of the course includes 10 laboratory exercises with 9 quizzes, 2 practicals, 2 notebook checks, and a final exam. For the lab grade breakdown, please refer to your lab syllabus available through Canvas.

Grading:
Exams will be composed of material from both the book and lectures. There is a large amount of reading required for this course, so it is important to keep up with reading assignments listed in this syllabus. It is highly recommended that students read the assignment before the lecture on that topic. Although effort will be made to adhere to the tentative exam schedule, exam dates may be shifted and students are required to be aware of any changes communicated by the professor. Your performance in this course will be assessed through four examinations. There will be four exams, each covering the subject material for that corresponding portion of the course. The first four exams will cover the subject material for that portion of the course (see tentative schedule of lectures). The final (optional) exam will be comprehensive of the entire semester. You may not have any other personal belongings at your desk during an exam. You must also bring your student ID to all exams. You will not be allowed to take an exam if you do not comply.

- The format of exams may be multiple choice, true/false, fill-in-the-blank, and/or short essay questions.
- You are required to bring a #2 pencil, blue general purpose SCANTRON electronic grading form (No. 4521), and your UTA student ID to each exam.
- The final exam is scheduled for Tuesday, July 9th from 10:30am –12:30 pm in the same classroom as regular lectures unless otherwise announced.

Your final course grade will be calculated as follows:

Exam 1	18%
Exam 2	20%
Exam 3	20%
Exam 4	22%
Lab	20%

There is a Final Exam, but is optional. The final exam grade can be used to replace the lowest score from Exams 1-4.

The following grade scale will be used to determine final course grade:

A	89.5-100%
B	79.5-89.4
C	69.5-79.4
D	59.5-69.4
F	Less than 59.5

The grading scale is strictly enforced.

Make-up Exams:
You are required to be present for all exams. You will be considered absent from an exam if you enter the room after one person has completed and submitted the exam. Whether or not an absence for an exam will be excused is at the discretion of the instructor. If seeking an excused absence, a 24-hour notice prior to the exam date and time is required. A written request by a physician or responsible professional or written proof of jury duty are examples of documents needed when seeking an excused absence. No exceptions. If you miss an exam, you will automatically be given an exam score of zero. Exams missed due to excused absence must be taken within one day of your return to class. No other make-up exams will be given.

Conflict Resolution:
If you are experiencing an issue in lab or class, you should first arrange a meeting with your instructor. If the issue is lab related, if after you have met with your instructor and the issue remains unresolved, you may then consult the Laboratory Supervisor (Dr. Whitney Tholen). If the issue still requires attention, you may then consult the Associate Chair of the Department of Biology (Dr. Laura Mydlarz). To do this you can file a grievance at https://www.uta.edu/php-lib/machform/view.php?id=3403. You must file the form in order to have your issue heard. None of the listed personnel will discuss the issue with you until you have first consulted all of those preceding him/her.

Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (http://www.uta.edu/provost/administrative-forms/course-syllabus/index.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Tentative Course Schedule

Date	Reading Assignment or Activity
06/03	Syllabus overview; Chapter 1
06/04	Chapter 2
06/05	Chapter 3
06/06	**EXAM #1**
06/10	Chapter 4
06/11	Chapter 5
06/12	Chapter 6
06/13	**EXAM #2**
06/17	Chapter 7
06/18	Chapter 8
06/19	Chapter 9, Chapter 13
06/20	**EXAM #3**
06/24	Chapter 14
06/25	Chapter 11
06/26	Chapter 12, Chapter 15
06/27	**EXAM #4**
07/03	**OPTIONAL FINAL EXAM**

Additional Information

Attendance:
The University does not require monitoring your attendance; each faculty member is free to establish course-specific policies on attendance. With the exceptions of exam dates, you are not required to attend lectures. However, it is highly recommended that you attend the lectures for this course. You are responsible for all material covered in the lectures and the textbook as well as any changes to the schedule.

Lab Safety Training:
Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Emergency Exit Procedures:
Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Students are encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at Emergency Communication System.

Student Support Services:
UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, mentoring (time management, study skills, etc.), major-based learning centers, counseling, and federally funded programs. For individualized referrals, students may call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at Resource Hotline (http://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php).

IDEAS Center:
The IDEAS Center (https://www.uta.edu/ideas/) **(**2nd Floor of Central Library) offers **FREE** tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.
The Library's 2nd floor Academic Plaza (http://library.uta.edu/academic-plaza) offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation.

Research or General Library Help

- Academic Plaza Consultation Services (library.uta.edu/academic-plaza)
- Ask Us (ask.uta.edu/)
- Library Tutorials (library.uta.edu/how-to)
- Librarians by Subject (library.uta.edu/subject-librarians)
- A to Z List of Library Databases (libguides.uta.edu/az.php)
- Study Room Reservations (openroom.uta.edu/)

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381