BIOL3303.001 Syllabus (Version 7/30/19)

Course Information

Course Number/Section	BIOL 3303.001		
Course Title	Introduction to Microbiology		
Term	Fall 2019		
Days & Times	8:30 am – 9:45 AM	Tuesday/Thursday	JO4.614

Professor Contact Information

Professor	Dr. Nicole De Nisco
Email Address	nicole.denisco@utdallas.edu
Office Location	BSB 12.530
Office Hours	**Drop in on Thursdays, 10:30 am – 12:00 pm, or make an appointment.** BSB is a controlled access building. You must check in with the building guard, who will call me to escort you into the building. **You must have an ID to check into the building.**

Teaching Assistant Contact Information

Graduate Teaching Assistants	Neha Hulyalkar (neha.hulyalkar@utdallas.edu)
	Tahira Amdid Ratna (txr171730@utdallas.edu)

Course Pre-requisites

BIOL 2281 (Introductory Biology Laboratory) and BIOL 2311 (Introduction to Modern Biology I) and BIOL 2312 (Introduction to Modern Biology II) or their equivalents.

Course Description

Microbes contribute to major biogeochemical processes, live in environments inhospitable to other organisms, and may comprise the majority of biomass on Earth. They can form beneficial symbioses with multicellular organisms, including humans, where they play critical roles in development, metabolism, and immunity. In contrast, many microbes adopt pathogenic lifestyles where they thrive at the expense of their multicellular hosts. Consequently, some of these microbes have become global public health concerns. This course surveys the form and function of the microbial world.

Student Learning Objectives/Outcomes

In this course students will learn the basic principles of microbiology, including microbial cell structure and function, growth, metabolic processes, genetics, and how microbes interact with multicellular hosts. The course will emphasize modern problems and applications related to human health, including mechanisms of microbial pathogenesis, antibiotic resistance and microbiome research. The goal is for students to acquire basic knowledge about microbial structure and function and to understand how microbes affect human health and society. Learning will be assessed through exam questions utilizing various formats (for example, multiple choice, fill in the blank, short answer, essay), a writing assignment, and with interactive in-class quizzes and discussions.

Upon completion of this course, students should be able to:

1. Describe and analyze the following principles of microbiology: microbial cell structure and function, growth, metabolism, genetics, and interaction with multicellular hosts.
2. Apply this knowledge to design experiments and formulate hypotheses.
3. Apply this knowledge to interpret and critique primary scientific literature.

Textbooks and Materials

Text

Michele Swanson, Gemma Reguera, Moselio Schaechter, and Frederick C. Neidhardt. *Microbe, 2nd edition*. ASM Press [ISBN: 9781555819132].

Required Program/Applications

Top Hat https://tophat.com

Supplemental videos and readings will accompany some lectures. These materials will be posted on eLearning in advance of lecture. Powerpoint slides will be posted on eLearning and downloaded into Top Hat in advance of lecture.

Although lectures will be based off of the text, all information needed for examinations will be included on lecture slides and in materials posted on eLearning.

Academic Calendar **Topics and chapters are subject to change.

Date	Topic	Chapters
Aug. 20	L1. Introduction to class: A Microbial Planet	Ch. 1
Aug. 22	L2. Microbial Diversity	Ch. 14
Aug. 27	L3. Prokaryotic Cell Exterior: Envelopes	Ch. 2
Aug. 29	L4. Prokaryotic Cell Exterior: Appendages	Ch. 2
Sept. 3	L5. Antibiotics and the bacterial cell envelope (Guest Lecturer: Dr. Kelli Palmer)	
Sept. 5	L6. The fungus among us (Guest Lecturer: Dr. Jessie Fernandez)	Ch. 15
Sept. 10	L7. Viruses	Ch. 17
Sept. 12	L8. Protists; Exam review and discussion	Ch. 16
Sept. 17	**Exam 1**	
Sept. 19	L9. Prokaryotic Cell Interior	Ch. 3
Sept. 24	L10. Microbial Growth and Division I	Ch. 4
Sept. 26	L11. Microbial Growth and Division II	Ch. 4
	Homework assignment distributed on eLearning, will be discussed in class	
Oct. 1	L12. Microbial Metabolism	Ch. 5
Oct. 3	L13. Synthesis of Building Blocks I	Ch. 7
Oct. 8	L13. Central Dogma I	Ch. 8
Oct. 10	L14. Central Dogma II	Ch. 8
Oct. 15	L15. Mutations and genetic exchange	Ch. 10
Oct. 17	L16. Secretion	Ch. 9
Oct. 22	L17. Coordination of cellular processes; Exam review and discussion	Ch. 11
Oct. 24	**Exam 2**	
Oct. 29	L18. Microbial stress responses	Ch. 12
Oct. 31	L19. Motility and chemotaxis	Ch. 12
Nov. 5	L20. Microbiomes	Ch.
Nov. 7	L20. Infection: the vertebrate host	Ch. 22
Nov. 12	L21. Opportunistic infections: MRSA	Ch. 23
	*****Nov. 13: Homework assignment due on eLearning by 5 pm**	
Nov. 14	L22. Intracellular pathogens	Ch. 24
Nov. 19	L22. Bacterial toxins	Ch. 26
Nov. 21	L23. Viral pathogens: Herpes and Polio	Ch. 25
Nov. 25-29	No class, Fall Break	
Dec. 3	In-class film	TBA

Dec. 5 **Exam 3**

Dec. ? **Final exam (for make-ups only) - Date, time, and location TBA by university**

Grading Policy

• 3 Required exams: Each worth 25% of final grade

Content and format of exams: **Each exam is cumulative** but will focus primarily on the most recently covered material. Exam material will derive from course lectures and slides, class discussions, and assigned readings posted on eLearning. Study guides for each of the exams will be posted on eLearning in advance of each exam. Exam questions will be of multiple formats (for example, multiple choice, fill in the blank, short answer, essay, graph sketching).

Final exam: **The final exam is a make-up exam only.** It is a cumulative exam. It is a make-up exam if a previous exam is missed. It is not designed to be more difficult than previous exams, but it will cover material from the entire semester. There will not be a separate study guide for the final exam. **If you will miss more than one exam for university excused reasons which are known in advance (holy days, athletic events, et cetera), speak with me immediately so that plans can be made for your make-up exams.**

• In-class participation via Top Hat: Worth 15% of final grade

Objectives: To create an interactive learning atmosphere we will use Top Hat for in-class polling and quizzes. In-class quiz questions will each be worth 1 point and students will receive 0.75 points for participation (answering the question) and the remaining 0.25 points for a correct answer. Any other questions in class will be graded solely for participation.

How to link to the course on Top Hat: navigate to the following page https://app.tophat.com/register/ and chose "sign-up as a student" and fill out the requested information. Please be advised that there is a $30 fee for the semester, but this will cover your use of Top Hat for all UTD courses. A code will be distributed before the first class that will allow you to link to the course and access all posted materials. In-class quiz questions will be available for review the day after class.

• 1 homework assignment: Worth 10% of final grade

Objectives: The homework assignment will ask you to think critically about primary scientific literature and to apply knowledge you have learned from the lectures and course readings.

How to submit assignments. Assignments must be uploaded to eLearning so that plagiarism checks can be performed. Turnitin links for assignment submission can be found in the Homework folder on eLearning. If drawings/diagrams are required, egenerate a digital image using Powerpoint or another program and include it in the Turnitin assignment.

Will late assignments be accepted? **No.** You are expected to manage your time effectively and turn the assignment in on time. Late assignments will receive a zero grade.

Can students work together on the assignments? Yes, you may discuss the assignment, however, each of you will be graded individually, and **I expect each of you to write your own answers.**

Good writing practices. I encourage you to consult this resource: https://www.utdallas.edu/library/plagiarism/index.html. Some general rules to remember are: (1) Don't copy your classmates' writing. (2) Don't copy/paste directly from sources. Instead, synthesize information in your own words. (3) Direct quotations are used very rarely in scientific writing. Direct quotes are not allowed and points will be taken off if direct quotes are used.

• Grading scale

Grade	Percentage	Grade	Percentage	Grade	Percentage
A+	**97.00–100.00**	**A**	**93.00–96.99**	**A−**	**89.50–92.99**
B+	**87.00–89.49**	**B**	**83.00–86.99**	**B−**	**79.50–82.99**

C+	**77.00–79.49**	**C**	**73.00–76.99**	**C−**	**69.50–72.99**
D+	**67.00–69.49**	**D**	**63.00–66.99**	**D−**	**59.50–62.99**
F	**0.00–59.49**				

Course Policies

Attendance: Class attendance will be monitored via Top Hat and will be required to receive full participation credit. If you are unable to attend class for an excused reason, please contact the course TA.

Make-up exams: Exam attendance is required. If you must miss one of the three required exams for any reason, you may take the final exam as a make-up. **If you will miss more than one exam for university excused reasons which are known in advance (holy days, athletic events, et cetera), speak with me immediately so that plans can be made for your make-up exams.**

Classroom Citizenship: If you arrive late to class, do so quietly.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.