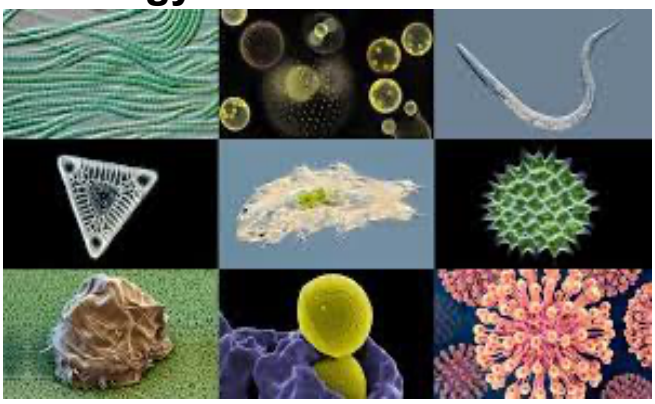
BIOL3303.001 Introduction to Microbiology

SLC 1.102: Tues and Thurs 11:30-12:45 PM



Professor

Erica L. Sanchez, PhD
e-mail: erica.sanchez@utdallas.edu
Twitter: @elsanchez09
Office Hours: On Teams by appointment.

Teaching Assistants

Priya Christensen: Priya.Christensen@UTDallas.edu
Aparna Uppuluri: Aparna.Uppuluri@UTDallas.edu

Course Modality and Expectations

Instructional Mode	Face to face: The instructor and students are present in the classroom according to the class schedule.
Attendance Expectations	Students are expected to attend lecture and participate. Students should contact the Professor and TAs if they cannot attend lecture for any reason. Please see list of accepted excused absences in syllabus. Lectures will not be recorded but lecture slides will be posted.

Classroom Conduct Requirements Related to COVID-19

Please follow UT Dallas guidelines when on campus. UT Dallas **strongly encourages** all students and staff to wear a face covering that covers the nose and mouth in all university buildings and classrooms. UT Dallas also **strongly encourages** students and staff to get a COVID-19 vaccine to protect themselves and the Comet community. If you have questions or concerns about COVID-19 vaccines, please watch this presentation, featuring experts from UT Southwestern that explains the safety and efficacy of available vaccines and the risks borne by the unvaccinated. UT Dallas also recommends that students register their vaccination status through the voluntary vaccine reporting form.

Students who have tested positive for COVID-19 or may have been exposed should not enter university buildings and should instead follow required disclosure notifications as posted on the university's website. The latest information on our guidance and resources for campus health and safety can be found on our Comets United webpage.

Class Attendance

Regular and punctual class attendance is expected. Students who are unable to attend lecture must notify the Professor and TAs. Lectures will NOT be recorded but lecture slides will be posted on eLearning. Due to the complexity of the course material, students who fail to attend class regularly are inviting scholastic difficulty. Disruption of lectures and inappropriate conduct will not be tolerated and students caught doing so may face disciplinary action for UTD Student Code of Conduct violations.

Class Participation

Regular class participation is expected. Class participation will be monitored through in-class activities and weekly quizzes. Students are encouraged to raise their hand to ask questions during lecture. Class participation will be evaluated by your TAs and professor. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student Access Ability accommodation. Failure to comply with these University requirements is a violation of the UTD Student Code of Conduct.

Class communication:
SLACK Page: Join at this link!---- EVERYONE SHOULD JOIN ASAP!
https://join.slack.com/t/biol3303001spring2024/shared_invite/zt-2av5stzww-HgT9~X02_469F843_v35Dw

- **SLACK is the primary and preferred form of communication this semester, and will be used for a portion of your participation grade with our weekly SLACK reflections.**
- SLACK is the BEST way to communicate with your instructor, your TAs, AND your classmates will be on our class SLACK page. Information for joining will be provided.
- **Dr. Sanchez PREFERS SLACK message communication over email. Please use SLACK for questions for Dr. Sanchez, TAs, and to collaborate with classmates!**
- **Weekly SLACK reflections will be due Mondays by 11:59 PM from each student. Many weeks there will be a specific prompt given, however, if no specific prompt is given, this is an opportunity for each student to check in and connect with classmates and the instructor!**

E-mail: For most class communication with classmates and the instructor, SLACK is the preferred mode of communication. For more formal requests, clarification, or concerns, please feel free to email Dr. Sanchez.
For ALL email: please include "BIOL3303.001.24S" in your SUBJECT HEADING.
You are welcome to e-mail me any questions. I will try to respond in a timely fashion. Whenever e-mailing, please sign the e-mail with your full name and Student ID number.

BIOL 3303.001 General Course Information

Pre-requisites, Co-requisites, & other restrictions

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 (i.e. bacteria, fungi, archaea, protists, viruses) represent the most diverse and abundant set of living (and non-living) organisms on the planet. Microbes contribute to major biogeochemical processes, live in environments inhospitable to other organisms, and 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 focusing on examples of microbes from all domains of life.

Learning Outcomes

In this course students will learn basic principles of microbiology, including microbial cell structure and function, growth, metabolism, 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 of various formats (e.g, multiple choice, fill in the blank, short answer, essay), and problem sets.

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

1. Define a microbe and describe the specialized attributes and life cycles of bacteria, fungi, archaea, and viruses.
2. Describe and analyze the following principles of microbiology: microbial cell structure and function, growth, metabolism, genetics, and interaction with multicellular hosts.
3. Describe the steps of key microbiological experiments
4. Formulate hypotheses, design experiments, and interpret experimental data relevant to the field of microbiology.

Supplemental Text

Microbe 2nd edition. Michele Swanson, Gemma Reguera, Moselio Schaechter, and Frederick C. Neidhardt. ASM Press [ISBN: 9781555819132]. eText and rental options available on Amazon.

Supplemental videos and readings will accompany some lectures. These materials will be posted on eLearning in advance of lecture. Slides will be posted on eLearning.

Note: *This syllabus and schedule are subject to change. If you are absent from class, it is your responsibility to check on announcements made while you were absent.*

Date	Topic	Chapters
Jan 16	L1. Introduction to class: A Microbial Planet	Ch. 1
Jan 18	L2. Past, Present and Future Pandemics	TBA
Jan 23	L3. Microbial Diversity	Ch. 14
Jan 25	L4. Prokaryotic Cell Exterior: Envelopes	Ch. 2
Jan 30	L5. Prokaryotic Cell Exterior: Appendages	Ch. 2
Feb 1	L6. Prokaryotic Cell Interior	Ch. 3
Feb 6	L7. Viruses; **Problem Set #1 due**	Ch. 17
Feb 8	L8. Fungi	Ch. 15
Feb 13	L9. Protists**; Exam review and discussion**	Ch. 16
Feb 15	**Assessment 1**	
Feb 20	L10. Microbial Growth and Division	Ch. 4
Feb 22	L11. Microbial Metabolism	Ch. 5
Feb 27	L12. Synthesis of Building Blocks	Ch. 7
Feb 29	L13. Central Dogma	Ch. 8
Mar 5	L14. Mutations and Genetic Exchange	Ch. 10
Mar 7	L15. Motility & Chemotaxis; **Problem Set #2 due**	Ch. 12
Mar 12	***NO CLASS---Have a great Spring Break!***	
Mar 14		
Mar 19	L16. Microbial Stress Responses;	Ch. 12
Mar 21	L17. Antimicrobial Resistance	TBA
Mar 26	L18. Bacterial Secretion Systems; **Exam review**	Ch. 9
Mar 28	**Assessment 2**	
Apr 2	L19. Infection: Innate and Adaptive Immunity	Ch. 22
Apr 4	L20. Epidemiology and Vaccination;	Ch. 22
Apr 9	L21. Microbiomes, **Problem Set #3 due**	TBA
Apr 11	L22. Immunodeficiency and Opportunistic Infections	Ch. 23
Apr 16	L23. *Pseudomonas aeruginosa*, *Candida auris*	Ch. 24
Apr 18	L24. Intracellular Pathogens	Ch. 24
Apr 23	L25. *Toxoplasma gondii* and *Mycobacterium tuberculosis*	Ch. 24
Apr 25	L26. Viral Pathogens: Herpes and Polio	Ch. 26
Apr 30	L27. Viral Pathogens: Coronaviruses; **Exam review**	TBA
May 2	**Assessment 3**	
May 7	**No formal final during finals week**	

Course Policies

Grading (credit) Criteria

3 Assessments: Each worth 15% of final grade (45% total)
Content and format of Assessments: Each Assessment is cumulative but will focus primarily on the most recently covered material. Assessment material will derive from course lectures and slides, class discussions, and assigned readings. Study guides for each Assessment will be posted on eLearning in advance. Assessments will be conducted **in class during the class period** on day listed in the syllabus. Assessments are timed (1 hour, 15 minutes) and questions will be of multiple formats (e.g. multiple choice, fill in the blank, short answer, free response).

3 problem sets: Each worth 10% of final grade (30% total)
Problem sets will be assigned at least two class periods before their due date on eLearning. Problem sets will give students an opportunity to apply knowledge learned in class and prepare students for exam questions. Questions in problems sets will be in various formats but the majority of questions will be free response.

Participation: Worth 25% of final grade
Class attendance and participation in class discussions, weekly quizzes and weekly SLACK reflections

How to submit assignments. Assignments including problem sets and the class project **must be uploaded via the link on eLearning.** If drawings/diagrams are required, generate a digital image using Powerpoint or another program and include it in the submitted assignment. **Do not** email assignments to the TAs or Professors.

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

Good writing practices. 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 quotes are not allowed,** and points will be taken off if direct quotes are used. I encourage you to consult this resource: https://www.utdallas.edu/library/plagiarism/index.html.

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	59.50–66.99		

Make-up Assessments
Assessments must be completed during the in-class examination period. Make-up Assessments are not allowed unless there is a documented illness, emergency, or religious holiday.

Students must notify Professor and TAs if they must miss an Assessment for an excused reason and schedule a make-up Assessment immediately. Make-up Assessments may be different than the original administered exams.

Extra Credit
Extra Credit opportunities may be announced throughout the semester.

Late Work
Assignments should NOT be turned in late ***except*** in the case of serious illness or emergency. You are expected to manage your time effectively and turn the assignment in on time. ***Late assignments may receive partial credit and may receive a zero if submitted without documentation of a serious illness or emergency.***

Class Attendance
If you are unable to attend class for an excused reason, please contact the course TAs and Professor. **DO NOT attend class if you test positive for COVID-19**. Please notify the Professor immediately and give proof of a positive test result so that accommodations may be made. If you must miss lecture due to another excused reason (e.g. religious holiday, medical school interview) **please notify the Professor and TAs *BEFORE* your absence.**

Classroom Citizenship
Please treat everyone with kindness, dignity, and respect. Please do not interrupt or raise your voice to the Professors, TAs, or your classmates during class. Please be mindful of the social distancing requests of your Professors, TAs and your classmates and consider wearing a face covering to protect yourself and others. If you arrive late to class, do so quietly. Please make sure all phones and electronic devices are on silent.

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"

Academic Support Resources
The information contained in the following link lists the University's academic support resources for all students.
Please go to http://go.utdallas.edu/academic-support-resources.

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.

BIOL3303.001: Spring 2024: Syllabus and Classroom Agreement

Please sign and submit THIS PAGE ONLY on eLearning by Tuesday 1/24 at 11:59 PM.

I, _____(student name), hereby designate that I have read thoroughly read this syllabus and community agreement and have access to this document to continue to check course requirements, resources, and deadlines.

I understand the expectations described in this document and understand who and how to ask questions throughout this semester.

I also understand that if changes to our schedule and this syllabus need to be made by the professor that they will be announced to the class and it will be my responsibility to implement these changes.

I will be sure to stay informed by attending class, frequently reviewing our class SLACK and eLearning page, and checking with classmates, TAs, and the professor for clarification if necessary.

PRINT NAME: _____

SIGNATURE: _____ DATE: _____