DEPARTMENT OF
BIOLOGY

NYU | ARTS & SCIENCE

BIOL-UA 560: Microbiology and Microbial Physiology

Instructor:
Xiaoxue (Snow) Zhou

Course Description:
The course is intended as a comprehensive description of microbes with a primary focus on bacteria and fungi (although viruses and protists will also be discussed). Course topics include the structure and function of microbial cells, growth and cell division, signaling and stress response, microbial development, microbial interactions with each other, the host and the environment, and microbial evolution through lectures and critical analysis of primary literature.

Prerequisite:
Molecular and Cell Biology I (BIOL-UA 21)

Textbook and Required Materials:
Madigan & Martinko, Brock Biology of Microorganisms 2021,16th Edition or 2018,15th Edition

Grading:

Homework	30%
Discussion Leadership and Presentation	10%
Discussion Participation	10%
Discussion Report	10%
Exam 1	15%
Exam 2	15%
Final paper	10%

Topics:
- Bacterial and fungal cell structure
- Bacterial and fungal cell growth and division
- Microbial genetics and genomes
- Microbial signaling and stress responses
- Microbial interactions and quorum sensing
- Microbial development and differentiation
- Microbial phylogeny and evolution
- Biotechnology
- Microbial pathogens and host-pathogen interactions
- Antimicrobials: growth control and resistance
- Human microbiome