MBG 501 Microbial Genetics
Course Syllabus, Fall/2024

Instructor: Prof. Dr. Ferda Soyer
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Lecture:
13:30-16:15 Wednesday G210

Office hours: After class and by Appointment

Recommended Materials:
Journal articles
Molecular Genetics of Bacteria 3/e by Larry Snyder, Wendy Champness, 2007, ASM Press

Course Objectives: This course aims to explore the fundamentals of the genetics of microorganisms, especially bacteria, based on the current understanding of molecular biology and biochemistry. Mainly:

- Microbial regulation of gene expression and genetic adaptation
- Mutations and Mutagenesis
- Gene transfer: transformation, transduction, conjugation, plasmids, transposition

Grading Policy:

Paper Assignments	%25	
Midterm Exam	%25	November 13th 2024
Paper Project	%25	Due **December 25th 2024**
Final Exam (cumulative)	%25	**January 8th 2025**

Assigned papers: Several published manuscripts will be assigned reading over the semester. The manuscripts have been chosen to demonstrate real-world scientific problems that relate to the topics discussed in class. The manuscripts will be posted as pdf files at least one week before they are discussed in class. Each student is expected to read the manuscript and be prepared to answer questions and participate in a group discussion. Pertinent questions about the manuscripts may be asked on the exams.
In general, you will be expected to participate in class discussions both as an active discussant and as a respective listener.

Tentative Schedule:

Regulation of Gene Expression: Operons

Global Regulation: Regulons and Stimulons

DNA Repair and Mutagenesis

Bacterial Genetic Analysis: Forward and Reverse

Plasmids

Conjugation

Transformation

Bacteriophages: Development, Genetics, and Generalized Transduction

Transposition, Site-Specific Recombination, and Families of Recombinases