



The Goodman
Faculty of Life Sciences
Bar-Ilan University

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General Microbiology 80203

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Academic year: 2021-2022 Semester: Hours/credits: 2 hours lecture / 1 credit

Mandatory

Prerequisites: None

Year in program & how often given, if relevant: 2nd year undergraduates course given once a year

Course Overview – Short abstract: Introduction to basic aspects in microbiology related to physiology and impact on health and disease.

Learning outcomes – The course aims at providing the students with basic understanding of major physiological traits of microorganisms and their impact on our environment and health.

Assessment: Coursework and Grade structure: 100% exam. Students must get 60 or more in the final exam in order to pass the course

Week-by-Week content, assignments and reading

Lesson #	Subject	
1	Past and future in microbiology	
2	The structure of the prokaryotic cell in comparison to eukaryotic cells.	
3	Bacterial growth, parameters, measuring methods, growth in extreme environments	

4	The bacterial cell wall biosynthesis, composition of gram+/- cells	
5	Bacteria sporulation, capsule, bacterial inclusions (gas vesiculas, carbon storage)	
6	Bacteria motility, flagella pili, chemotxis	
7	Bacterial nutrition anabolism and catabolism, fermentation, respiration.	
8	Carbon, Nitrogen , Sulfate cycles, microbial mats	
9	Bacterial gene regulation, repression, induction, global regulation, two-component system	
10	Bacterial genetics-transcription, mutations and SOS repair	
11	Bacterial genetics-transformation, transduction, conjugation, plasmids	
12	Antimicrobials , Antibiotics and Antibiotic resistance	
13	Microbiome and Bacterial virulence	
14	Bacterial virulence	

Required text:

Brock Biology of Microorganisms edited by M.T. Madigan, J.M. Martinko, J.

Parker Prentice-Hall-Pearson Education International