**Maj/Biotech-102 ---- Microbiology 3**

COURSE OBJECTIVES

This course aims to familiarize students with fundamentals of prokaryotic and eukaryotic microbial life including viruses.

COURSE CONTENTS

Overview and history of microbiology including microbial diversity (Archaea, bacteria, fungi, algae, protozoa), viruses; control of microorganisms: sterilization and disinfection, antimicrobial agents, antibiotics, antibiotic resistance and susceptibility, antifungal and antiviral agents; nutrition, growth; cultivation; cell death; symbiosis, carbon, nitrogen, sulfur and phosphorus cycles; microbiology of soil, freshwater and seawater.

PRACTICALS

Microbiology lab visit; Sterilization techniques; culturing of bacteria in liquid and on solid medium; Gram-staining of bacteria; colony and cell morphology; bacterial cell count and growth curves.

RECOMMENDED BOOKS

1. **Pelczar, Michael J., Eddie Chin Sun Chan, Noel R. Krieg, Diane D. Edwards, and Merna Foss Pelczar. *Microbiology: concepts and applications*. Vol. 182. New York: McGraw-Hill, 1993.**
2. Alcamo IE, 2010. Fundamentals of Microbiology. Ninth Edition, Jones and Bartlett Publishers.
3. Madigan MT and Martinko J, 2010. Brock Biology of Microorganisms. 13th Edition; Pearson College Div.
4. Talaro KP, 2009. Foundations in Microbiology: Basic Principles. Seventh Edition; McGraw Hill Publisher.
5. Black JG, 2007. Microbiology: principles and explorations. SeventhEdition; John Wiley and Sons.
6. Baker et al., 2006. Instant Notes in Microbiology. ThirdEdition; Taylor and Francis.
7. Prescott et al., 2005. Microbiology. SixthEdition; McGraw-Hill Medical Publishing.

## Cappuccino JG and Sherman N, 2013. Microbiology: a laboratory manual. Tenth Edition; Pearson Education.