UNIVERSITI TEKNOLOGI MARA

CBE531: MICROBIOLOGY AND CELL BIOLOGY

Course Name (English)	MICROBIOLOGY AND CELL BIOLOGY APPROVED
Course Code	CBE531
MQF Credit	3
Course Description	This course provides an introduction to an overview of microbiology. Major topics covered include the taxonomy of microbes, impact of microbes on the biosphere, microbial cell biology (morphology, growth, and metabolism), genetics and molecular biology, microbial ecology, and microbial interactions with humans. The course will familiarize students with major themes in microbiology, from historical to latest developments of the science.
Transferable Skills	Microbiology
Teaching Methodologies	Lectures, Tutorial, Discussion
CLO	CLO1 Describe the diverse microorganisms group according to their physiological characteristics and their role in the evolution of life on earth. CLO2 Differentiate the mechanism and metabolite of microbial in bioproduct development. CLO3 Develop a basic industrial design in bioproduct development using microbiology concept and principle
Pre-Requisite Courses	No course recommendations

Topics
1. Chapter 1: Introduction to microbiology 1.1) History and scope of microbiology 1.2) Basic groups of microbes
2. CHAPTER 2: Anatomy of Prokaryotic cells 2.1) Overview of cell structure 2.2) Cytoplasmic matrix, nucleoid, cell wall, chemotaxis and bacterial endospore.
3. CHAPTER 3: Anatomy of Eukaryotic cells 3.1) Overview of cell structure 3.2) Cytoplasmic matrix, microfilaments, intermediate filaments and microtubules 3.3) Mitochondria, nucleus and cell division, choloroplasts, external wall coverings
4. CHAPTER 4: Microbial taxonomy and phylogeny: classification of microo 4.1) Phylogeny Relationships 4.2) Classification or organisms 4.3) Methods of classifying and identifying Microorganism
5. CHAPTER 5: Archaea 5.1) Introduction and general characteristic 5.2) Industrial application
6. CHAPTER 6: Bacteria 6.1) Deinococci and nonproteobacteria gram negatives 6.2) Proteobacteria, low G + C gram positives 6.3) High G + C gram positives
7. CHAPTER 7: Viruses 7.1) Introduction and general characteristics 7.2) Bacteriophages 7.3) Viruses of eukaryotes

8. CHAPTER 8: Fungi: Yeast and Mold
8.1) Distribution and importance
8.2) Structure and Morphology
8.3) Nutrition, metabolism, reproduction and characteristics of fungal divisions
8.4) Slime moulds and water moulds
8.5) Industrial Application

9. CHAPTER 9: Protozoa and Algae
9.1) Distribution
9.2) Structure and Morphology
9.3) Nutrition, reproduction and classification
9.4) Industrial Application

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment 1	10%	CLO1 , CLO2
Assignment	Assignment 2	10%	CLO2 , CLO3
Test	Test 1	10%	CLO1 , CLO2
Test	Test 2	10%	CLO2 , CLO3

Reading List

Recommended Text

- **Prescott,L.M.,harley,J.P.,Klein,D.A. 2005, *Microbiology*, 5 Ed., McGraw Hill**

Reference Book Resources

- **Madigan,M.T.,Martinko,J.M.,and Parker,J., 2003, *Biology of Microorganisms*, 10 Ed., Prentice-Hall.**
- **Black,J.G. 2004, *Microbiology:Principles and Explorations*, 6 Ed., John Wiley and Sons**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources