UNIVERSITI TEKNOLOGI MARA

BMS413: CELLS AND LIFE

Course Name (English)	CELLS AND LIFE APPROVED
Course Code	BMS413
MQF Credit	3
Course Description	This course introduces students to the basic concepts of cell biology. The syllabus includes topics on cell structures and functions in both prokaryotic and eukaryotic cells. The DNA and cellular reproduction, cell membrane, cell transport and ethical issues in science and technology are also dealt with.
Transferable Skills	Identify ethical issues in Cell Biology
Teaching Methodologies	Lectures, Blended Learning, Tutorial
CLO	CLO1 1. Illustrate principal mechanisms of cellular processes, cell division processes and their relationship to human diseases (PLO6-C3). CLO2 2. Demonstrate ethics and professionalism to science and technology in cell biology (PLO4-A3). CLO3 3. Demonstrate information retrieval and management skills in tasks related in cell biology (PLO7-A3)
Pre-Requisite Courses	No course recommendations

Topics
1. 1.0 Prokaryotic Cell 1.1) The cell theory 1.2) Types of prokaryotic cells 1.3) An overview of prokaryotic cell structure 1.4) Prokaryotic cell membranes 1.5) Cytoplasmic matrix 1.6) The nucleoid 1.7) The prokaryotic cell wall 1.8) Components External of the cell wall
2. 2.0 Eukaryotic Cell Structures and Functions 2.1) An overview of Eukaryotic cell structure 2.2) An overview of cells differentiation- in plant and 2.3) animal 2.4) The cytoplasmic matrix, microfilaments, intermediate filaments, and microtibules 2.5) The endoplasmic reticulum 2.6) The Golgi Apparatus 2.7) Lysosomes and endocytosis 2.8) Eukayrotic ribosomes 2.9) Mitochondria 2.10) Chlroplasts 2.11) Lysosomes 2.12) Vacuoles 2.13) The nucleus 2.14) External cell coverings 2.15) Cilia and flagella 2.16) Comparison of prokaryotic and eukaryotic cell
3. 3.0 DNA and Genetic Information 3.1) Structure of nucleotides (DNA and RNA) 3.2) Chromosomes 3.3) An overview of DNA in relation with gene transcription and translation in both prokaryotic and eukaryoti cells

4. 4.0 Cellular Reproduction 4.1) Binary fission 4.2) The cell cycle 4.3) M Phase (Mitosis and Cytokinesis): significance and stages- prophase, metaphase, anaphase, telophase and cytokinesis 4.4) Meoisis: significance and stages-M1 and M2 4.5) Comparison between mitosis and meiosis 4.6) Gametogenesis in plants 4.7) Gametogenesis in animals
5. 5.0 Cell Membrane and Transport 5.1) An overview of membrane functions 5.2) Membrane lipids 5.3) Membrane carbohydrates 5.4) Membrane proteins 5.5) Diffusion, facilitated diffusion, active transport and osmosis 5.6) Endocytosis and exocytosis

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Online Assignment on Comparison of Prokaryotic and Eukaryotic Cells and Functions	20%	CLO2
Presentation	Online Group Presentation of related topics.	20%	CLO3
Test	Online Test 1	60%	CLO1

Reading List

Recommended Text

- **Campbell, Reece and Mitchell 2014, *Biology*, 10th Edition Ed., The Benjamin Publishing**
- **Gerald Karp 2014, *Cell Biology*, 7th Edition Ed., Wiley & Sons, Inc**

Article/Paper List

Reference Article/Paper Resources

- **Prescott, Harley and Klein 2014, Microbiology, Mc Graw Hill**
- **Campbell and Reece 2015, Biology: a global approach, Pearson**
- **Gerald Karp 2013, Cell and Molecular Biology: Concepts and Experiments, Wiley & Sons, Inc**
- **Kenneth A Mason 2014, Biology, Mc Graw Hill**
- **Eldra, Charles, Diana & Linda 2015, Biology, Australia US, Cengage Learning**

Other References

This Course does not have any other resources