DEREE COLLEGE SYLLABUS FOR: BI 2222 CELL BIOLOGY	2/0/2
(Fall 2024)	**UK LEVEL : 4** **UK CREDITS: 10**
PREREQUISITES:	BI 1000 Introduction to Biology I BI 1101 Introduction to Biology II
CATALOG DESCRIPTION:	An exploration of the fundamentals of cell biology as a science, understanding the cell as a dynamic, self-regulated unit of life, its structure and organelles, its chemical composition and metabolism, its function and interaction with other cells.
RATIONALE:	This course will expose students to key themes of prokaryotic and eukaryotic cell biology illustrated by examples from a wide range of microbial and mammalian systems. It is designed to prepare students for advanced courses in molecular biology, pharmacology and pathophysiology. The control of all living processes will be introduced and an opportunity to monitor students' knowledge and progress will be provided.
LEARNING OUTCOMES:	As a result of taking this course, the students should be able to: 1. Outline the concepts of cell organization, cell cycle and the basic functions of the cell. 2. Recall knowledge about the composition, structure and function of the prokaryotic and eukaryotic cell. 3. Distinguish the structure and function of various organelles, as well as the mechanisms of molecular trafficking in the cell. 4. Evaluate the role of biological macromolecules and their contribution to intracellular and intercellular communication.
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: • Lectures and class discussions. • Homework assignments. • Office hours held by the instructor to provide further assistance to students. • Use of library facilities for further study and preparation for the exams • Use of the Blackboard course management platform to further support communication and the teaching supplements, by posting lecture notes, assignment instruction, timely announcements, formative quizzes and online submission of assignments.
ASSESSMENT:	**Summative:** **1st assessment**: In-class midterm examination (1 hour) (with multiple choice, short answers, matching, essay questions, combination, problem solving) — 40%

	<table><tr><td>**2nd examination**: Portfolio (take home assignments and/or in class quizzes)</td><td>10%</td></tr><tr><td>**Final assessment**: In-class final examination (2-hour, comprehensive), Multiple choice, short answer, essay questions.</td><td>50%</td></tr></table> **Formative:** <table><tr><td>Formative relevant assessment to prepare students for the summative assessment.</td><td>**0**</td></tr></table> The midterm examination tests learning outcomes 1-3. The final examination tests all learning outcomes and it is comprehensive. *The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. If students pass the comprehensive assessment that tests all Learning Outcomes for this module and the average grade for the module is 40 or higher, students are not required to resit any failed assessments.*
INDICATIVE READING:	**REQUIRED READING:** Alberts B *et al*, Essential Cell Biology, 6th Edition, **Norton** & Company, Inc. **RECOMMENDED READING:** Other sources, including journal and scientific articles, research papers etc. recommended by the instructor throughout the semester.
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL:** N/A **RECOMMENDED MATERIAL:** N/A
COMMUNICATION REQUIREMENTS:	Verbal and written skills using academic / professional English
SOFTWARE REQUIREMENTS:	MS Office and Blackboard CMS
WWW RESOURCES:	http://www.usd.edu/biol/labs/151/devel51.htm http://www.mcb.harvard.edu/BioLinks.html http://www.nature.com/index.html
INDICATIVE CONTENT:	- Organization of prokaryotic and eukaryotic cells, origin and evolution of organisms, microscopy, model organisms - Chemical components of cell - protein structure, function and control, methods of protein analysis - Structure and function of the nucleus - Membrane lipid bilayer and membrane proteins - Transport across cell membranes - Energy generation in mitochondria and chloroplasts

	- Intracellular compartments and protein transport - Membrane enclosed organelles, vesicular transport, secretory and endocytic pathways - Cell signalling, receptors and cell behaviours - The cytoskeleton - The cell-division cycle - Cell communication, extracellular matrix and cell junctions - Stem cells and tissue regeneration