Unit Description Form

Course Description Form

/ Faculty of Engineering
Department of Biomedicine

Unit Information Course Information			
Unit Title	**Cytology**	**Unit delivery**	
Unit Type	**secondary**		☒ نظريه ☒ حاضر ☒ المختبر ☐ تعليمي ☐ عملي ☐ Seminar
Unit Code	BME-111		
ECTS Credits	8		
SWL (ساعة / SEM)	125		
Unit level	1	**Delivery Semester**	1
Department of Administration	Biomedical Engineering	**College**	Faculty of Engineering
Unit Commander	Aref Samir Ayed Aref	**E-mail Address**	aref.alsyad@uowa.edu.iq
Title of Unit Commander	Assistant Lecturer	**Unit Commander Qualifications**	Master
Unit Teacher		**E-mail Address**	
Peer Reviewer Name	name	**E-mail Address**	E-mail Address
Date of accreditation of the Scientific Committee	26/9/2024	**Version number**	1.0

Relationship with other units Relationship with other subjects			
Prerequisites Unit	No	**Semester**	
Common Requirements Unit	No	**Semester**	

Unit objectives, learning outcomes and how-to contents Course objectives, learning outcomes and instructional contents	
Objectives of the Unit Course Objectives	The objectives of the Cell Science module focus on enabling students to understand the structure of the cell and its basic functions, where its various components such as the nucleus, cytoplasm, cell membrane, and organelles are studied, while identifying the role of each in cellular processes. The unit also seeks to clarify the differences between cell types, including prokaryotic and eukaryotic cells, as well as to compare plant and animal cells in terms of structure and function. The unit also aims to provide a deep understanding of the biological processes that occur within the cell, such as cellular respiration, photosynthesis, cell division (mitosis and mesomyosis), and the mechanisms of transporting substances through the cell membrane. Practical aspects are enhanced by enabling students to use a microscope to study the structure of cells and tissues and observe the subtleties of cellular organs. The course also seeks to connect cells to tissue and organ functions, helping students understand how cells interact to form integrated living systems. In addition, the molecular foundations of heredity are highlighted by studying the relationship between genes and proteins and their role in controlling cell functions. These goals seek to build a strong scientific base that students can apply in areas such as biological research and medical science.

Unit Learning Outcomes Learning outcomes of the course	The learning outcomes of the Cell Science module include enabling students to analyze and understand the basic structure of the cell and the functions of its various components, as well as their ability to distinguish between prokaryotic and eukaryotic cell types and plant and animal cells. Students are able to interpret the vital processes that occur within the cell such as cellular respiration, photosynthesis, and cell division, while developing their ability to use laboratory tools such as microscopes to study the fine details of cellular organs and tissues. Students learn how to connect cells and tissues to understand how organisms are organized, and gain basic knowledge of the molecular processes that control cell functions, including the relationship between genes and proteins. Through this module, students are able to apply the concepts of cell science in multiple fields such as scientific research and biomedical sciences.
Indicative Contents Indicative Contents	The instructional contents of the Cell Science module can include a detailed and integrated explanation of the basic concepts and components that students need to understand this vital science. The module begins with an introduction to cell science, including the definition of the cell and its importance as the basic unit of life, with a brief presentation of the history of cell study and the development of knowledge about it. The unit deals with cell structure in detail, including cell components such as the plasma membrane, nucleus, cytoplasm, and organelles such as mitochondria, endoplasmic reticulum, and Golgi's system. The functions of each component are explained separately and their relationship to other cellular functions. The course includes an explanation of biological processes within the cell, such as the mechanisms of transport of substances through the plasma membrane (active and passive transport), cell division of all kinds, and energy-related biological processes such as cellular respiration and photosynthesis. Emphasis is also placed on studying the differences between plant and animal cells, clarifying the characteristics of prokaryotic and eukaryotic cells. The contents also include practical applications that help students use a microscope to examine cell samples, enhancing a practical understanding of theoretical concepts. These concepts are presented in an interactive way that helps students connect theoretical knowledge with practical applications in the fields of medicine and scientific research.

Learning and Teaching Strategies
Learning and Teaching Strategies

Strategies	The learning and teaching strategy in the Cell Science Unit is based on a combination of theoretical lectures and interactive demonstrations to promote a deep understanding of concepts. Educational tools such as presentation slides and microscopes are used to conduct hands-on experiments that help explore cellular structures. Group discussion and problem-solving are encouraged to stimulate critical thinking, as well as students are assigned to applied projects to promote the link between theoretical knowledge and practical reality.

Student Workload (SWL)
The student's academic load is calculated for 15 weeks

SWL منظم (h / sem) Regular academic load of the student during the semester	64	**SWL regulator (h / s)** Regular student load per week	4
SWL غير منظم (h / sem) Irregular academic load of the student during the semester	61	**Unregulated SWL (h/s)** Irregular student academic load per week	4
SWL إجمالي (h / sem) The student's total academic load during the semester	125		

Unit Evaluation
Course Evaluation

As		Time/Number	Weight (tags)	Week due	Related learning outcomes
Formative Assessment	**Contests**	2	10% (10)	5, 10	LO #1 , 2 , 10 and 11
	Assignments	2	10% (10)	2, 12	LO #3 , 4 , 6 and 7
	Projects /Laboratory.	1	10% (10)	continuous	every
	report	1	10% (10)	13	LO #5 , 8 and 10
Final Assessment	**Midterm Exam**	2 hr	10% (10)	7	LO #1-7
	Final Exam	2 hours	50% (50)	16	every
Overall Rating			100% (100 degree)		

Delivery Plan (Weekly Curriculum) Theoretical Weekly Curriculum	
week	**Covered Material**
Week 1	The student is introduced to the cell, cellular theory, and the methods used in the study of cellular
Week 2	The student learns about the characteristics of "prokaryotic empty, the way of living and knowledge of its types such as bacteria, archaea and features."All kind
Week 3	The student learns about the characteristics of the true nucleus and the organelles that make up the eukaryotic free and know the types and functions of those organelles such as fungi
Week 4	The student learns about the membrane that surrounds the empty and its importance for the cell and the transport processes that occur through this membrane and know the ways of cellular communication between one cell and another
Week 5	The student learns about the contents of the cytoplasmic and the distinction between organelles and plasma impurities resulting from cellular metabolism, as well as the contents of the skeletal system - microtubules - fine filaments - medium hairs
Week 6	The student learns about viruses, their content, the nuclear material they contain, the diseases they cause, as well as their shapes and sizes .and its life cycle
Week 7	The student learns about the nucleus and the importance of the nucleus and the functions it performs at the cellular level as well as the contents of the nucleus and the importance of each content
Week 8	The student is introduced to amino acids (DNA and RNA) and knowledge of their structure, importance, functions and the ability to distinguish between them
Week 9	The student learns about apoptosis, the causes of cell death, the importance of death at the cellular level, as well as knowledge of necrosis and the reasons for the occurrence of necrosis and
Week 10	The student learns what is the life cycle of the cell, its importance, the stages it goes through, and the method of cell division that occurs in the empty

Week 11	The student learns about the factors that regulate the life cycle of the cell in the normal state and in the event of a problem how the cell behaves as well as identifying meiosis and the stages that the cell goes through through this division
Week 12	The student learns what are ribosomes and endoplasmic reticulum: such as the rough endoplasmic retina, and the importance and functions of each organelle at the cellular level.
Week 13	The student is introduced to the smooth network and the colgi device.And identify the places they find and know the functions performed by each organ at the level . Cell
Week 14	The student learns about all secretory granules, lysosomes, proteosomes and their importance and the functions performed by each organelle at the cellular level.
Week 15	Identify mitochondria, peroxisomes and proteisomes and know the structure of the importance of each organel and the functions performed by each organelle . At the cellular level

Learning and Teaching Resources

Learning and Teaching Resources

	text	Available in the library?
Required texts	1.Steven_R_Goodman_MD_editor_Goodman's_Medical_Cell_Biology_Academic	Yes
Recommended texts		Yes
Websites		

Grading chart

Grading chart

group	degree	Appreciation	Tags (%)	definition

An-Najah Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Proper work with noticeable errors
	D - Satisfactory	medium	60 - 69	Fair but with significant shortcomings
	E - sufficient	Acceptable	50 - 59	The work meets the minimum standards
Group failure (0 – 49)	**FX** - Failed	Deposit (in (processing	(45-49)	More work required but credit granted
	F - Failed	Failure	(0-44)	Large amount of work required

Note: Signs that are more than 0.5 decimal places greater than or below the full mark will be rounded higher or lower (for example, a score of 54.5 will be rounded to 55, while a mark of 54.4 will be rounded to 54. The university has a policy of not tolerating "imminent traffic failure", so the only modification to the marks granted by the original mark(s) will be the automatic rounding described above.