Faculty: Faculty of Science	
Department: Service Courses Unit	**Program: Bachelor in Dentistry**
Semester:	**Academic year:**

Course Plan

First: Course Information

Course No.: 0300182	***Course Title: Cytology and General Biology***	***Credit Hours: 4 (3+1)***
Prerequisite:	***Section No.:***	***Lecture Time:***
Type Of Course:	■ ***Obligatory Faculty Requirement*** ☐ ***Elective University Requirement*** ☐ ***Obligatory University Requirement*** ☐ ***Faculty Requirement*** ☐ ***Course Elective Specialty Requirement*** ☐ ***Obligatory Specialization requirement***	
Type of Learning:	■ ***Face-to-Face Learning*** ☐ ***Blended Learning (2 Face-to-Face + 1Asynchronous)*** ☐ ***Online Learning (2 Synchronous+1 Asynchronous)***	

Second: Instructor's Information

Name:	***Academic Rank:***	
Office Number:	***Phone Number:***	***Email:***
Office Hours:		

Third: Short Description of the Course

Theoretical part: This course introduces the principles and concepts of biology and covers the internal structure of the cell, molecules of the cell, traffic across biological membranes, metabolism, respiration and photosynthesis, cell-cell signaling, cell division, molecular biology of the gene, DNA technology and some familiar techniques used in cell biology.

Practical part: includes lab instructions and introduction, the use and care of the microscope, wet mount preparation of prokaryotic and eukaryotic cells, chemical composition of macromolecules, diffusion and osmosis through cellular membrane, cellular respiration and photosynthesis, cellular division (mitosis & meiosis) and some human characteristics related to genetics as blood grouping.

Fourth: Learning Source

Designated Book:	***Author:* Campbell Biology 12th Ed. (2020).** Reece, J. B., Urry, L.A., Cain, M.L., Wasserman, S.A.,Minorsky, P.V. & Jackson, R.B. Publisher: Pearson	***Print* :**Campbell Biology 12th
Author:	Reece, J. B., Urry, L.A., Cain, M.L., : Wasserman, S.A.,Minorsky, P.V. & Jackson	***Year: 2020***
Additional Sources: Website:	***The Cell: A Molecular Approach, Geoffrey M. Cooper and ,Robert E. Hausman 6th edition, Sinauer Associate*** ***http://www.masteringbiology.com*** lecture notes, class Lecture/discussion, assigned reading, audio - visual material, class writings, computer assignments.	
Teaching Type:	■***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ▫ **MS Teams** ☐ **Moodle**	

Fifth: Learning Outcomes

Number	*Course learning output*	*Associated Program Outcome Code*
Knowledge and understanding		
*K1	Students will be able to Recognize the forms and functions of different levels of biological organization, provide an introduction to biological molecules and cell structure and functions.	*PK1
*K2	Students should be able to give a closer look to major functions in biology such as energy transformation, transport across membranes, protein synthesis, cell division, and inheritance.	PK2
*K3	Students should be able to biological vocabulary, terminology, conventions (including symbols, quantities and units).	PK3
*K4	Students will understand how cell work and their physiological role in their function.	PK³
Subject and specific skills		
*S1	Students will be able to connect with different sources of information and encourage students to solve many tasks during each chapter.	PS1
S2	Students will be able to be using animation, video and film resources to capture/obtain information not available in other forms.	PS2
S3	Students will be able to critical-thinking skills such as analytic skills, strategic thinking, creative thinking and innovation.	PS3

S4	Students will be able to recognize the components of biological molecules, and understand cell structure, function and describe the generalized structure of prokaryotic and eukaryotic cells, as well as describe how substances across biological membranes	PS3
S5	Students will be able to understand the importance of energy flow as in respiration and photosynthesis, and describe mitosis and meiosis, as well as the cell cycle, and explain the importance of each process in reproduction and growth	PS5
S6	Describe the structure and function of DNA and RNA, and the application of biological information in life.	PS6
Competences		
*C1	**Communication:** Effectively communicate clearly and accurately about biological issues in both oral and written form	PC1
C2	**Teamwork and Leadership:** Fostering an ability to collaborate effectively with others on scientific projects, leading to a productive outcome.	PC2

*K: knowledge, S: skills, C: competencies. ** P.K: Program Learning Outcome Knowledge, P.S: Program Learning Outcome Skill, P.C: Program Learning Outcome Competence.

Sixth: Course Structure

Lecture Date	Teaching Outcome	Topics	Teaching Procedures *	Teaching Methods ***	References***
	K1	Introduction to a biology and cytology course	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K1	Biological Macromolecules	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K2,K3,S1, S2	Carbohydrates	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K3,S2,C1	Proteins Structure	Face-to-Face teaching	Lecturing Discussion Whiteboard	Chapter 5

				Power point You tube videos	
	K1,K4,S3,S4,C1, C2	Proteins Organizations and Metabolism	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K4,S3,S4,C1	Enzymes	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K2,K3,S4	Lipids Structure And Function	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 5
	K4,S3,S4,C1,C2	Cell Membranes:	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 8
	K4,S3,S4,C1	Transport Across Membrane	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 8
	K1,K4,S3,C1	The Structural Basis Of Cellular Information: DNA	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 14
	K1,K4,S3,S4,C1	Genetics-Nucleic Acid and Inheritance	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 14
	K4,S3,S4,C1,C2	Expression Of Genes Transcription and Translation	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 14
	K1,K4,S3,S4,C1	Cellular respiration Glycolysis And Fermentations	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 10
	K1,K4,S3,S4,C1	Cellular respiration	Face-to-Face teaching	Lecturing	Chapter 10

				Discussion Whiteboard Power point You tube videos	
	K1,K2,K4,S4,C2	Glycolysis and Fermentations.	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 10
	K1,K4,S3,S4,C1	Krebs Cycle And ETC	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 10
	K1,K3,S3,S4,C1	Cell cycle and cell division	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 11
	K1,K3,S3,S4,C1	Mitosis	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 13
	K1,K3,S3,S4,C1	Meiosis and sexual life cycles	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 13
	K1,K3,S3,S4,C1	Nucleus	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 7
	K1,K4,S3,S4,C1	Nucleus	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 7
	K1,K3,S3,S4,C1	Cell Organelles	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	Chapter 7
	K1,K3,S3,S4,C1	Cell Organelles	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point	Chapter 7

				You tube videos	
	K1,K3,S3,S4,C1	Revision	Face-to-Face teaching	Lecturing Discussion Whiteboard Power point You tube videos	

Education procedures: (Direct, synchronous, asynchronous). * * Teaching methods: Lecture, video…..). * * Reference: Pages of the book, recorded lecture, video….)

Date	Lab	Teaching Outcome	Teaching Methods	References
	- Introduction to biology laboratory - Lab safety rules		Lecture, Lab	Lab manual
	- Lab instruction and introduction (Tools)	**Students will be able to summarize lab safety rules instruction**	Lecture, Lab	Lab manual
	- The compound light microscope & wet mount preparation technique	**Students will be able to recognize The microscope part** **Students will be able to recognize Cell structure and function**	Lecture, Lab	Lab manual
	- The Prokaryotic and Eukaryotic cells	Students will be able to recognize different cell and differentiate between eukaryotic cells and prokaryotic cells	Lecture, Lab	Lab manual
	- Biological macromolecules Detection: Carbohydrates and Lipids	Students will be able to determine biological properties of macromolecules and link structure with its chemical properties in lab	Lecture, Lab	Lab manual
	- Biological macromolecules detection: Proteins and Nucleic acids	Determine different chemical properties of proteins and peptide bonds	Lecture, Lab	Lab manual

		and will be able to extract DNA		
	- Cellular transport (Diffusion and Osmosis)	Student will be able to observe different cellular transport, and perform experiment to understand transport across membrane by diffusion ; students can differentiate between osmosis and diffusion	Lecture, Lab	Lab manual
	- Factors affecting the Catalase enzyme activity	Students will define the different factors affecting enzyme activity ; and domestrate how the enzyme catalyse the reactions	Lecture, Lab	Lab manual
	- Cellular respiration and fermentation	Discuss which components are necessary for the production of energy. identify the key energy molecule of the body. understand which type of cellular respiration produces more energy. build a model representation of ATP and ADP.	Lecture, Lab	Lab manual
	- Cell division (meiosis and mitosis)	Students will be able to recognize Cell division (meiosis and mitosis); Distinguish between somatic and	Lecture, Lab	Lab manual

		germline cells; listing similarities and differences. Compare and explain the inheritance of germline .Describe, using diagrams, the sequence of events involving DNA in meiosis from chromosome duplication through chromosome segregation.		
	- Human genetics - Report form of human genetics	Students will be able to distinguish different traits and the genetic expression of these traits	Lecture, Lab	Lab manual

Seventh: Assessment methods

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	Material Output to be measured
Midterm Exam	0	0	30	
Final Lab Exam	0	0	20	
Final Exam	0	0	50	

Methods	**Fully Electronic Education**	**Integrated Teaching**	**Direct Teaching**						
				K1	**K2**	**K3**	**S2**	**S3**	**S4**
Mid Exam			**30**	**10**		**5**	**5**	**5**	**5**
Final Lab Exam			**20**	**5**			**5**	**5**	**5**
Final Exam			**50**		**20**	**15**	**5**	**5**	**5**
Total out of 100			**100**	**15**	**20**	**20**	**15**	**15**	**15**

Eighth: Course Polices

- Meeting the deadline for the lecture.
- Commitment to interaction and participation.
- Interactive lectures will be given through a platform (MS Teams).
- Duties and tests will be given through a platform (Moodle).
- Commitment to the right appearance in front of the camera with the proper background.
- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: Fraud or moral impersonation are unacceptable and are punishable according to university regulations and instructions.

Approval	Name	Date	Signature
Head of Department			
Faculty Dean			