

Course Specification Template

1. General Information about the Instructor:

Name	Dr. Ahmad M. Saleh			Class Time & Office Hours				
Phone	Internal		Day	SUN	MON	TUE	WED	THU
	External			11-12		11-12		11-12
Mobile	0598410821		Class Time	13-14		13-14		13-14
Instructor's E-mail	ahmadsaida@yahoo.com		Class Room	G011		G011		G011
	a.m.saleh@ptuk.edu.ps		Office Hours	12-13	9-11	12-13	9-11	12-13

2. General Information about the Course

No	Requirements						
1	Course Title	General Biology I					
2	Course code & Number	15030101					
3	Credit hours	Theo. (CH):3			Practical (CH):		
4	Faculty	Science and Agriculture					
5	Department / Division that offers the course:	All Dept.s of Science and Agriculture					
6	Course type	Compulsory			Elective		
		Uni. <input type="checkbox"/>	Fac. <input checked="" type="checkbox"/>	Dep. <input type="checkbox"/>	Uni. <input type="checkbox"/>	Fac. <input type="checkbox"/>	Dep. <input type="checkbox"/>
7	Level and Semester	First Year/ First, second and summer semesters					
8	Prerequisite(s) – If any	None					
9	Co-requisite(s) – if any	None					
10	Program/programs for it/them the course is offered	Applied Chemistry, Applied Physics, Applied Computer, Applied Maths, Agriculture					
11	Instruction Medium:	English <input checked="" type="checkbox"/>			Arabic <input type="checkbox"/>		

3. Course description:

This course intends to provide undergraduate students of science and agriculture with basic knowledge in biological themes that are necessary for understanding other related courses and for their future careers. The first part of this course focuses on studying the chemistry of water, central roles of carbon in biological molecules, diversity in structure and functions of macromolecules, energy flow and roles of enzymes in biological systems, structure and functions of cellular organelles, importance of cellular membranes. The second part will provide students with brief overview on biochemistry of cells represented by cellular respiration and photosynthesis. Cell cycle and divisions: mitosis and meiosis are discussed in the third part. Finally, structure and functions of nucleic acids, steps of gene expression and mechanisms of controlling gene expression will be discussed.

4. General Course Objectives

On successful completion of this course the student will be able to achieve the following objectives:

1. To know different aspects of water chemistry
2. To understand the significance of carbon in biological molecules
3. To correlate between structure and function of different types of macromolecules.
4. To correlate between the structure and function of cell organelles and structures.
5. To understand the role of enzymes and energy flow in biological systems
6. To study the structure and functions of cell membranes
7. To understand the process of cellular respiration and fermentation
8. To understand the process of photosynthesis.
9. To know different stages of mitosis and meiosis
10. To correlate between the structure and functions of nucleic acids
11. To study the process of gene expression and protein synthesis
12. To understand how cells regulate the expression of their genes.

5. Intended Learning Outcomes/ILO's (please specify the learning outcomes of the course as outlined below):

A) Knowledge and understanding

1. List the distinguishing properties of water as molecule of life
2. Name different types of atoms that bind with carbon to form biological molecules.
3. Correlate between structure and function of macromolecules and cellular organelles.
4. Describe the mechanisms of enzyme action in cells.
5. State the main differences between prokaryotic and eukaryotic cells, plant and animal cells..
6. Outline the metabolic pathways of photosynthesis and cellular respiration.
7. Outline different stages of meiosis and mitosis.
8. Label the constituents of nucleic acids: DNA and RNA
9. Describe the process of gene expression
10. Describe how cells control their gene expression

B) Intellectual/Cognitive skills

1. Estimate the amount of energy produced from glucose breakdown by different cellular pathways.
2. Explain the difference in function among different types of cells and organelles, and macromolecules based on their structure.
3. Summarize the functions of cell organells, macromolecules.
4. Compare between gene expression and energy production between prokaryotes and eukaryotes.
5. Digram different stages of the cell cycle and cell divisions.
6. Interpret the outcomes of feedback inhibition in enzymatic activity control

C) Subject specialization and practical skills

1. Use of microscopes
2. Detection of macromolecules in living tissues
3. Measure the rate of molecules transport through semi-permeable membranes
4. Measure the effects of activators and inhibitors on enzyme activity.
5. Operating the basic instruments in biology lab.
6. Identification of unknown macromolecules
7. Observe the differences between different types of cells via the microscope.
8. Prepare wet-mount slides

D) General and transferable skills

1. Use the computer to study from online resources and prepare lab reports
2. Use the computer to present collected data.
3. Work in team.
4. Gain knowledge and experience for future career in science
5. Perform scientific search on certain point in biology

6. Topics covered and Calendar:**A. Theoretical parts (Please state the titles of the subjects you intend to cover each week)**

Number	Topics	Number of hours
Chapter 3	The Chemistry of Water	3
Chapter 4	Carbon: The Basis for Molecular Diversity	3
Chapter 5	Biological Macromolecules and Lipids	3
Chapter 6	Energy and Life	3
	First-Exam	
Chapter 7	Cell Structure and Function	6
Chapter 8	Cell Membranes	3
Chapter 10	Cell Respiration	6
Chapter 11	Photosynthetic Processes	3
	Second Exam	
Chapter 12	Mitosis	3
Chapter 13	Sexual Life Cycles and Meiosis	3
Chapter 16	Nucleic Acids and Inheritance	3
Chapter 17	Expression of Genes	6
	Final Exam	

B. Practical part (Please state the titles of the experiments you intend to cover each week)

Number	Experiment	Number of weeks
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

7. Student assessment methods based on ILO,s

No	Assessment method	Week	Mark	Percentage to overall mark
1.	First Exam	5 th Week	25	25%
2.	Second Exam	10 th Week	25	25%
3.	Mid-term Exam (if any)			
4.	Coursework	All	10	10%
5.	Final Exam	15 th Week	40	40%

8. References and other resources

A. Recommended Textbook(s): two maximum <ol style="list-style-type: none">1. Campbell et al Biology - A global approach. 10th Edition. Pearson, 2015.2. Mader, Sylvia, Biology, 12th Edition, New York: Mc-Graw Hill, 2015
B. Other references <ol style="list-style-type: none">1. Biology, 11th edition Aut; Sylvia Mader and Michael Windelspect 2013 McGraw-Hill publishers2. Biology, 7th Edition (Raven and Johnson)
C. Electronic resources, Websites related to the course <ol style="list-style-type: none">1. http://www.biologyjunction.com/

Name & signature of Head of department/ program leader

Name: signature:Date:

Name & signature of Quality rep. in your faculty

Name: signature:Date:

Course Tutor's name and signature

Name: signature:Date: