



Course Specifications

Revised November 2019

Course Title:	General Biology
Course Code:	4011101-4
Program:	BSc Microbiology
Department:	Department of Biology
College:	Faculty of Applied Science
Institution:	UM AL – QURA UNIVERSITY
Revision Date	November 2019

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A. Course Identification

1. Credit hours: 4 hours
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 1 st Year / Level 2
4. Pre-requisites for this course (if any): Introductory Microbiology 4012401-4
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	42	70 %
2	Blended		-
3	E-learning		-
4	Correspondence		-
5	Other	30	30 %

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	42
2	Laboratory/Studio	42
3	Tutorial	-
4	Practical/Field work/Internship	6
5	Others (specify)	30
	Total	102
Other Learning Hours*		
1	Study	30
2	Assignments	8
3	Library	15
4	Projects/Research Essays/Theses	10
5	Others (specify)	-
	Total	63

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

The course will cover the principle of eukaryotic cell structure and function. This course will provide a conceptual and experimental background in biology sufficient to enable students to take courses that are more advanced in related fields.

2. Course Main Objective

After completing this course student should be able to:

- Define the principles and concepts of the living cells.
- Differentiate between animal and plant cells
- Aware of the protoplasmic and non-protoplasmic cell contents and its structure and function.
- Study the different types of animal and plants tissues (structure and function).
- Understand the biological activities of the living cells.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge: Upon successful completion of this course The student will be able to: <ul style="list-style-type: none"> • Student will be familiar with the general characters of plant cells. • Student will be aware with the differences between plant and animal cells. • Student will be familiar with protoplasmic and non protoplasmic contents of plant cell. • Student will be familiar with the different types of plant tissues, their functions and distribution within plant body. • Define the difference between prokaryotic and eukaryotic cells. • Describe the fine structure and functions of all living organelles. • Explain biological activities of the animal cells. • Detect the difference between animal tissues. • Explain the function of animal tissues. • Discuss the distribution of all animal tissues in the body organs. 	
2	Skills: 2.1 Cognitive skills to be developed Having successfully completed the course students should be able to: <ul style="list-style-type: none"> • Explain the structure and function of the plant and animal cells. • Understand the ultrastructure and function of living organelles. • Follow some of the biological activities of the cell. • List types of plant and animal tissues. • Differentiate between plant and animal tissues. • Explain specific characters of each tissues. • Classify the plants and animal tissues • The student will be able to detect the plant and animal tissues in selected organs examined under the microscopic. 	
2.4.	Psychomotor Skills	

CLOs		Aligned PLOs
	<p>Upon successful completion of this course, the student is expected to be able to:</p> <ul style="list-style-type: none"> • Practice the basic Lab. Skills. • Use light microscope in accuracy. • Prepare microscopic slides. 	
3	Competence:	
3.1	<p>Upon successful completion of this course, the student is expected to be able to:</p> <ul style="list-style-type: none"> • Describe the structure of the cell • Explain most of the biological activities of the cell • Make short presentation about the cell and the animal tissues. • Defined the desirable sections. • Enhancing the ability of students to use computers and internet. • Interpret biological data • Present biological data orally. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • Demonstrate professional attitudes and behaviors towards others. • Propose the smart questions • Understand and dissecting the problem so that it is fully solved understood. • Demonstrate the assertiveness for his decision. • Demonstrate his capability for the responsibility and Accountability • Show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication, good listening for the others, questioning, good manners, problem solving, social awareness, self-management, responsibility and accountability) . • Enhancing the ability of students to use computers and internet. • Interpret the laboratory data. • Know how to write a report. 	

C. Course Content

1 Topics to be Covered		
Topic	No of Weeks	Contact hours
<p>❖ Introduction:</p> <ul style="list-style-type: none"> - The living cells. - Basis of cytology and histology. -Major differences between Eukaryotic and Prokaryotic cells. -Major differences between plant and animal cells 	1	3

❖ Plant cell morphology and structure I - Cell wall, middle lamella, types of pits. - Structure and function. - Cytoplasmic ultra structure and function: Endoplasmic reticulum; mitochondria; Golgi apparatus, ribosomes	1	3
❖ Plant cell morphology and structure II - Plastids, chloroplasts, chromoplast, leucoplast types, morphology, ultra structure and function, distribution. -Non protoplasmic contents of plant cell (cell vacuole – carbohydrates – proteins – fats and oils – crystals glycosides – latex – alkaloids – tannins – organic acids)	1	3
❖ Animal cell morphology and structure I -Fine structure of the Cell membrane and Cell junctions -Functions of cell membrane (cell transport) -Mitochondria, Peroxisomes, Lysosomes (phagocytosis, autocytosis and pinocytosis) Centrioles, cytoskeleton, microtubules and microfilaments,	1	3
❖ Animal / Plant cell morphology and structure: The Nucleus -Nucleus, nuclear envelope, nucleopores, nucleoplasm, chromatin and nucleolus. Mitochondria, Golgi apparatus and functions of each organell.	1	3
❖ Plant morphology and anatomy -Meristematic tissues in plants – classification of meristematic tissues – Apical and lateral meristems- Permanent tissues. Dermal system, ground system and vascular system. Ground system; parenchyma cell, collenchyma cell and sclerenchyma cell. Seed germination, conditions necessary for seed germination, dicotyledonous seeds and seedling 1) broad bean (<i>Vicia faba</i>), kidney bean (<i>Phaseolus vulgaris</i>), monocotyledonous seeds and seedling 1) maize (<i>Zea mays</i>)	1	3
❖ Plant morphology Morphology of the root – functions of the root, zones of the root, types of the roots, Adventitious roots	1	3
❖ Plant morphology Morphology of the stem- functions of the stem- origin, functions and types of the buds- Stem branching- habit of the stem- Metamorphosis of the stem.	1	3
❖ Plant morphology Morphology of the leaf- functions of the leaf- parts of the leaf- Arrangement of the leaf- types of the leaf- leaf venation- leaf metamorphosis		
❖ Animal Histology I -Introduction to Animal tissues difference and distribution of the animal tissues in the human body -Epithelial tissues, simple and stratified epithelia, glandular epithelia	1	3
❖ Animal Histology II -Connective tissues : Types of Cartilages Types of Bones Blood components	1	3

❖ Animal Histology III -Muscular tissues: -Smooth – skeletal – cardiac muscles. -Nervous tissues: -Neuron and its types - Nerve fibres - Neuroglial cells.	1	3
	14 weeks	42hrs

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	<p>Upon successful completion of this course The student will be able to:</p> <ul style="list-style-type: none"> • Student will be familiar with the general characters of plant cells. • Student will be aware with the differences between plant and animal cells. • Student will be familiar with protoplasmic and non protoplasmic contents of plant cell. • Student will be familiar with the different types of plant tissues, their functions and distribution within plant body. • Define the difference between prokaryotic and eukaryotic cells. • Describe the fine structure and functions of all living organelles. • Explain biological activities of the animal cells. • Detect the difference between animal tissues. • Explain the function of animal tissues. • Discuss the distribution of all animal tissues in the body organs 	<ul style="list-style-type: none"> - The methodology includes a combination of lectures by the lecturer, seminar presentation by the students and web-interactions. - At the end of the programme, students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course. - All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions. - Using images and movies - Encouraging students to collect the new information about what the new in Microbiology <p>Enable the reference books and scientific sites concerning</p>	<ul style="list-style-type: none"> - Periodical exam and reports 10% - Mid- term theoretical exam 20% - Mid-term practical exam 5% - Final practical exam 15% - Final exam 40%

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		General biology in internet.	
2.0	Skills		
2.1	<p>Cognitive skills</p> <p>Having successfully completed the course students should be able to:</p> <ul style="list-style-type: none"> • Explain the structure and function of the plant and animal cells. • Understand the ultrastructure and function of living organelles. • Follow some of the biological activities of the cell. • List types of plant and animal tissues. • Differentiate between plant and animal tissues. • Explain specific characters of each tissues. • Classify the plants and animal tissues • The student will be able to detect the plant and animal tissues in selected organs examined under the microscopic. 	<ul style="list-style-type: none"> - Lectures -Brain storming -Discussion 	<ul style="list-style-type: none"> - Exam must contain questions that can measure these skills. - Discussions after the lecture. - Quiz and exams
2.2	<p>Psychomotor Skills</p> <p>Upon successful completion of this course, the student is expected to be able to:</p> <ul style="list-style-type: none"> • Practice the basic Lab. Skills. • Use light microscope in accuracy. • Prepare microscopic slides. 	<ul style="list-style-type: none"> - Follow up students the students in lab and during carryout all the laboratory experiments 	<ul style="list-style-type: none"> -Giving additional marks for the students they have accurate laboratory results and good seminar presentation -Practical exam.
3.0	Competence		
3.1	<ul style="list-style-type: none"> • Describe the structure of the cell • Explain most of the biological activities of the cell • Make short presentation about the cell and the animal tissues. • Defined the desirable sections. • Enhancing the ability of students to use computers and internet. • Interpret biological data • Present biological data orally. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • Demonstrate professional attitudes and behaviors towards others. • Propose the smart questions 	<ul style="list-style-type: none"> - Lab work - Case Study - Active learning - Small group discussion - Homework (preparing a report on some topics related to the course depending on web sites). -Seminars presentation -Practical during carryout the experiments in the lab. -Field visiting for water and sewage-water treatment companies 	<ul style="list-style-type: none"> - Oral exams. - Evaluate the efforts of each student in preparing the report. -Evaluate the scientific values of reports. - Evaluate the work in team - Evaluation of the role of each student in lab group assignment - Evaluation of students presentations

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	<ul style="list-style-type: none"> Understand and dissecting the problem so that it is fully solved understood. Demonstrate the assertiveness for his decision. Demonstrate his capability for the responsibility and Accountability Show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication, good listening for the others, questioning, good manners, problem solving, social awareness, self-management, responsibility and accountability) . Enhancing the ability of students to use computers and internet. Interpret the laboratory data. Know how to write a report. 		

2. Assessment Tasks for Students

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Exam duration	Proportion of Final Assessment
1	Periodical Exam (s)	4	15 min	10 %
2	Mid Term Exam (Theoretic)	8	60 min	20 %
3	Mid Term Exam (practical)	9	30 min	10 %
4	Reports and essay	11	--	5 %
5	Final Practical Exam	15	60 min	15 %
6	Final Exam	16	120 min	40 %
Total Marks				100%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Office hours: 10hrs.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Reece et. al (2013) Campbell Biology 10 th edition. Benjamin Cummings. Mauseth, J. (2008) Plant Anatomy. Blackburn Press Wojciech Paulina (2015) Histology: a text and atlas. LWW
Essential References Materials	
Electronic Materials	
Other Learning Materials	<ul style="list-style-type: none"> • PPT prepared by Biology (plant and zoology) staff members.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • Class room is already provided with data show • The area of class room is suitable concerning the number of enrolled students (68) and air conditioned
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Digital lab containing 15 computers.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> • Incubators, autoclaves, measuring equipment, water bath, digital balances, pH meters, safety facilities. • Different media • All chemicals and reagents that needed • Availability all slides of plant and animal organs •

G. Course Quality Evaluation

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
<ul style="list-style-type: none"> • Questionaries • Open discussion in the class room at the end of the lectures.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department
<ul style="list-style-type: none"> • Revision of student answer paper by another staff member. • Analysis the grades of students.
3. Processes for Improvement of Teaching
<ul style="list-style-type: none"> • Preparing the course as PPT. • Using scientific movies. • Coupling the theoretical part with laboratory part • Periodical revision of course content.
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)
<ul style="list-style-type: none"> • After the agreement of Department and Faculty administrations
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
<ul style="list-style-type: none"> • Periodical revision by Quality Assurance Units in the Department and institution

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Prepared by faculty staff: 1. Botany / Zoology academic staff members.	Signature:
Date Report Completed: 1.11.2019	
Revised by: 1. Dr. Khaled Elbanna. 2. Dr. Hussein H. Abulreesh. 3. Dr. Shady M. ElShehawy.	Signature:
Date: 1.11.2019	
Program Chair Dr. Hussein H. Abulreesh.	Signature:
Dean	Signature:
Date:	