



# Course Specifications

**Revised November 2019**

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

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## A. Course Identification

<b>1. Credit hours:</b> 4 hours
<b>2. Course type</b>
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"/>
<b>3. Level/year at which this course is offered:</b> 1 <sup>st</sup> Year / Level 2
<b>4. Pre-requisites for this course (if any):</b>
<b>5. Co-requisites for this course (if any):</b>

### 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
<b>Contact Hours</b>		
1	Lecture	42
2	Laboratory/Studio	42
3	Tutorial	-
4	Practical/Field work/Internship	6
5	Others (specify)	30
	<b>Total</b>	<b>102</b>
<b>Other Learning Hours*</b>		
1	Study	30
2	Assignments	8
3	Library	15
4	Projects/Research Essays/Theses	10
5	Others (specify)	-
	<b>Total</b>	<b>63</b>

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

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

## C. Course Content

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

❖ <b>Plant cell morphology and structure I</b> - Cell wall, middle lamella, types of pits. - Structure and function. - Cytoplasmic ultra structure and function: Endoplasmic reticulum; mitochondria; Golgi apparatus, ribosomes	1	3
❖ <b>Plant cell morphology and structure II</b> - 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
❖ <b>Animal cell morphology and structure I</b> -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
❖ <b>Animal / Plant cell morphology and structure: The Nucleus</b> -Nucleus, nuclear envelope, nucleopores, nucleoplasm, chromatin and nucleolus. Mitochondria, Golgi apparatus and functions of each organell.	1	3
❖ <b>Plant morphology and anatomy</b> -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
❖ <b>Plant morphology</b> Morphology of the root – functions of the root, zones of the root, types of the roots, Adventitious roots	1	3
❖ <b>Plant morphology</b> 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
❖ <b>Plant morphology</b> Morphology of the leaf- functions of the leaf- parts of the leaf- Arrangement of the leaf- types of the leaf- leaf venation- leaf metamorphosis		
❖ <b>Animal Histology I</b> -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
❖ <b>Animal Histology II</b> -Connective tissues : Types of Cartilages Types of Bones Blood components	1	3

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

## D. Teaching and Assessment

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

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

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



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	<ul style="list-style-type: none"> <li>Understand and dissecting the problem so that it is fully solved understood.</li> <li>Demonstrate the assertiveness for his decision.</li> <li>Demonstrate his capability for the responsibility and Accountability</li> <li>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) .</li> <li>Enhancing the ability of students to use computers and internet.</li> <li>Interpret the laboratory data.</li> <li>Know how to write a report.</li> </ul>		

## 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

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

### 2. Facilities Required

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

## G. Course Quality Evaluation

<b>1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching</b> <ul style="list-style-type: none"> <li>• Questionaries</li> <li>• Open discussion in the class room at the end of the lectures.</li> </ul>
<b>2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department</b> <ul style="list-style-type: none"> <li>• Revision of student answer paper by another staff member.</li> <li>• Analysis the grades of students.</li> </ul>
<b>3. Processes for Improvement of Teaching</b> <ul style="list-style-type: none"> <li>• Preparing the course as PPT.</li> <li>• Using scientific movies.</li> <li>• Coupling the theoretical part with laboratory part</li> <li>• Periodical revision of course content.</li> </ul>
<b>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)</b> <ul style="list-style-type: none"> <li>• After the agreement of Department and Faculty administrations</li> </ul>
<b>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</b> <ul style="list-style-type: none"> <li>• Periodical revision by Quality Assurance Units in the Department and institution</li> </ul>

**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

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