Course Specifications

Course Title:	**Plant Physiology**
Course Code:	**42011313**
Program:	**Bachelor Degree in Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Al-Baha University**

Table of Contents

A. Course Identification

1. Credit hours:	**3 credit hours(2 lecture +1 practical)**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Fifth level / Third Year**
4. Pre-requisites for this course (if any)**:**	**Plant Anatomy 42011212**
5. Co-requisites for this course (if any)**:**	**None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	45	75
2	**Blended**		
3	**E-learning**	3	5
4	**Correspondence**		
5	**Other (Practical)**	12	20

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	28
2	**Laboratory/Studio**	28
3	**Tutorial**	
4	**Others** (specify)	
	Total	56
Other Learning Hours*		
1	**Study**	4
2	**Assignments**	
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (specify)	
	Total	60

* 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

Course Description:

This course is designed to study solutions, their types, classification, colloidal systems, their properties, diffusion in plant cell, imbibition, osmotic properties, water relations, water balance in plants, mineral nutrition, photosynthesis, respiration, plant hormones and plant regulators.

2. Course Main Objectives:

This course aims to introduce students to the basic physical and chemical laws of the physiological processes in plants:

- Understanding the relationship between the structure and function of the plant organs;
- Understanding some of the physiological phenomena such as diffusion, imbibition, permeability and osmosis and plant water relations(Absorption, transpiration) .
- Understanding the mechanism of mineral nutrition sources, how plants obtain their salts and minerals.
- Studying of photosynthesis (organic nutrition), physiological processes in plants and respiration in plants.
- Growth of plants by studying of hormones and growth regulators in plant as a main important factor of growth.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Mention different solutions, their types, base of classification, colloidal systems, their properties.	K1
1.2	Recognize the physiological phenomena such as such as diffusion, imbibition factors affecting imbibition, permeability and osmosis in plant cells.	K3
1.3	Define the concept of plant water relations(Absorption, sap stream take-up and transpiration).water balance.	K3
2	**Skills :**	
2.1	Discuss the mechanisms of minerals absorption.	S1
2.2	Explain the process of photosynthesis and respiration , factors affecting these physiological processes.	S1
2.3	Compare between the plants hormones types and their physiological roles in the plants.	S1

CLOs		Aligned PLOs
2.4	a- Differentiate between different solution(True, suspension and colloids solutions). b- Detect the minerals deficiency due to different symptoms on the plants.	S4
2.5	a- Determine the osmotic pressure of plant cell using phenomena of plasmolysis. b- Calculate the amounts of chlorophyll a, b and total chlorophyll.	S4
3	**Competence:**	
3.1	Develops the student's capacity for dialogue and discussion.	C1
3.2	Communicate effectively both in oral and written form during educational discussions/ meetings on the various subjects of the course	C1
3.3	Interactive with his/her colleagues while doing research and conducting laboratory.	C2

C. Course Content

No	List of Topics	Contact Hours
1	**Solutions, types, classification and colloidal systems and their properties**	6
2	**Diffusion – important of diffusion to plant cell- factors affecting-** **Diffusion**	3
3	**Imbibition - the dynamics of imbibition- the factors that affect imbibition - the biological importance of imbibition**	3
4	**Osmosis, the role of osmosis and osmotic pressure in plant cells, types of plasmolysis**	3
5	**Water relations - water absorption mechanism - theories that interpret the moving of water up to the top of plants - factors affecting water absorption.**	3
6	**Transpiration and water balance in plants - types of transpiration and its benefits – affecting factors – guttation phenomenon**	3
7	**Mineral nutrition: micronutrients (importance and deficiency symptoms) macronutrients (importance and deficiency symptoms)**	6
8	**Photosynthesis and the factors affecting photosynthesis**	6
9	**Respiration and factors that affect the rate of respiration**	6
10	**Plant hormones – growth regulators – types - function**	3
Total		42

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	Mention different solutions, their types, base of classification, colloidal	• Lectures • Assignments (Co-	• Written and oral

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	systems, their properties	operative & Individual assignments).	exams.(quiz 1& final exam).
1.2	Recognition of the physiological phenomena such as such as diffusion, imbibition factors affecting imbibition, permeability and osmosis in plant cells.	• Lectures • PowerPoint presentation	• Written and oral exams.(mid & final exam)
1.3	Define the concept of plant water relations(Absorption, sap stream take-up and transpiration).water balance.	• Lectures • Research and survey • Working in groups	• Written and oral exams. .(mid & final exam)
2.0	**Skills**		
2.1	Discuss the mechanisms of minerals absorption.	• Lectures • PowerPoint presentation. Assignments	• Written and oral exams. .(mid & final exam)
2.2	Explain the process of photosynthesis and respiration , factors affecting these physiological processes.	• Lectures • PowerPoint presentation. • Assignments	• Written and oral exams. .(mid, quiz2 & final exam)
2.3	Compare between the plants hormones types and their physiological roles in the plants.	• Lectures • Research and survey Working in groups	• Written and oral exams.(quiz 2& final exam).
2.4	a- Differentiate between different solution(True, suspension and colloids solutions). b- Detect the minerals deficiency due	Practical labs	Practical exams Practical report

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	to different symptoms on the plants.		
2.5	a- Determine the osmotic pressure of plant cell using phenomena of plasmolysis. b-Calculate the amounts of chlorophyll a, b and total chlorophyll.	Practical labs	Practical exams Practical report
3.0	**Competence**		
3.1	Develops the student's capacity for dialogue and discussion.	• Cooperative Learning. • Working in small groups. • Participate in classroom and non-classroom activities.	• Evaluation of individual & group works by rubric Observation Card
3.2	Communicate effectively both in oral and written form during educational discussions/ meetings on the various subjects of the course.	Power point presentation	• Presentation evaluation by rubric
3.3	Interactive with his/her colleagues while doing research and conducting laboratory.	• Assignments	• Assignments evaluation by rubric

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Quiz 2	13	5
4	Assignments, Activities & Attendance	During Semester	10
5	Final Practical Exam	15	10
6	Lab Reports	15	10
7	Final Written Theoretical Exam	16	50

***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 :

- The presence of staff members to provide advice, academic advice and academic guidance to the student who is in need during the six hours a week, available to all students.

Arrange extra hours for gifted students or program additional time for students who are weak in academics and scholastic achievements.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1- Plant Physiology and Development, Sixth edition, 2014. Lincoln Taiz, Eduardo Zeiger, Ian Max Moller and Angus Murphy. Oxford University Press 2- Plant Physiological Ecology, Second edition, 2009, By Hans Lambers , F. Stuart Chapin , Thijs L. Pons, Springer, 2009 3- كتاب فسيلوجية النبات - تأليف : ر. ذ. دفلس - ترجمة : د , عبد الحميد بن حميدة , د.محمد الحيلاني , د.حازم الالوسي. الناشر جامعة الفاتح –طرابلس. 4- كتاب اساسيات كيموحيوية وفسيولوجيا النبات - د/ محب طه صقر - أستاذ فسيولوجيا النبات - كلية الزراعة - جامعة المنصور
Essential References Materials	2. List Essential References Materials (Journals, Reports, etc.) • Journal of Plant Physiology & Pathology Journal of Plant Biochemistry & Physiology
Electronic Materials	3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. • http://www.alibris.com/search/books/subject/Plant-physiology https://www.amazon.com/Plant-Physiology-Fifth-Lincoln-Taiz/dp/0878938664
Other Learning Materials	4. Other learning material such as computer-based programs/CD, professio regulations and software

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Classrooms • Comfortable seats for students. • Laboratories • Preparation rooms .
Technology Resources (AV, data show, Smart Board, software, etc.)	• Projectors. • TV and educational videos • Computers. Smart board.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Spectrophotometer Chemicals

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty and Program Leaders	• Indirect: (student)-. Evaluation of the teaching process by number of students. Re-evaluation of a random sampling. **direct:(Program Leaders)**
Effectiveness of assessment	Members of teaching staff, Peer Reviewer and the students	Direct: Department exam committee by using course blueprint- Peer Reviewer-The form for meeting a course test for test standards. Indirect: Students Assessment questionnaire to students at the end of each semester to evaluate the course.
Extent of achievement of course learning outcomes	Program-coordinator, Peer Reviewer and Evaluation Commissions	Direct: Exams, standard exams and Evaluation Commissions exams
Quality of learning resources	Students and members of teaching staff	Indirect

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

Council / Committee	
Reference No.	
Date	

Course Specifications

Course Title:	**Chordata**
Course Code:	**42011315**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Al-Baha University**

Table of Contents

A. Course Identification

1. Credit hours:	2 hrs. (1 theorical + 1 Practical)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	Fifth Level, Third Year
4. Pre-requisites for this course (if any)**: None**	
5. Co-requisites for this course (if any)**: None**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	60	60%
2	**Blended**	5	5%
3	**E-learning**	5	5%
4	**Correspondence**		
5	**Other**	30	30%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	
4	**Others** (specify)	
	Total	60
Other Learning Hours*		
1	**Study**	45
2	**Assignments**	15
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others**(specify)	30
	Total	90

***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

Lectures: This course is designed to study phylum Chordata and related classes, and also study the main groups of vertebrates and relationship between the main morphological and structural aspects , And the study of the basic concepts of anatomy of vertebrate animals at the level of organs and organs composition, structure, in addition to functional and environmental adaptation..

2. 1. What is the main purpose for this course?

The objectives of this course are to:

introduce students to the basic concepts of vertebrates and main groups of animals

Classification of animal chordate according to groups

Outcomes:

After studying this course, the student is expected to be able to know the basic groups of chordata, classification of different vertebrates able to make comparison between different groups of vertebrates. Learning outcomes for this course: It is expected that after studying this course, the student will be able to:

- Identification of different types of vertebrates.
- Recognize the exact definitive and intermediate hosts for parasitic diseases
- Classify phylum chordata to their taxonomic groups according their morphological characteristics..
- Present information clearly in both written and oral form.
- Take responsibility for own learning and professional development.
- Work effectively in groups and exercise leadership when appropriate.

Communicates effectively in oral and written form in educational situations related to the subjects of the course.

3. Course Learning Outcomes

	CLOs	AlignedPLOs
1.0	**Knowledge**	
1.1	Define, understand and classify different types of chordata animals (topics 1,2,3)	K1
1.2	Classify phylum chordata to their taxonomic groups according their morphological characteristics (topics 4,5,6,7,8)	K3
1.3	Identification of the anatomical description of animals within different classes of vertebrates and how to distinguish between them (topics2-8)	K3
2.0	**Skills**	
2.1	Differentiation between class Chondrichthyes and class osteichthyes (topic4)	S1
2.2	Distinguish between different types of amphibian & different class of reptiles (topics5&6)	S2
2.3	Differentiation between different class of Aves&Mammalia (topics7&8)	S4
3.0	**Competence**	
3.1	**Take responsibility for own learning and** professional development	C1

	CLOs	AlignedPLOs
3.2	**Work effectively in groups and exercise leadership when appropriate.**	C1
3.3	Present information clearly in both written and oral form.	C3
3.4	Acquisition of skills in the dissection of some animals in the vertebrate division and the study of different members of each animal and comparing them with each other	C4

C. Course Content

No	List of Topics	Contact Hours
1	-General characters of chordata -Classification of chordata	**1**
2	-Morphological & anatomical structure of *Ascidia* -Retrogressive metamorphosis	**1**
3	--Morphological & anatomical structure of *Amphioxus*	**2**
4	-Differentiation between class Chondrichthyes & Osteichthyes -Morphological & anatomical structure of *Scyllium* Morphological & anatomical structure of *Tilapia*	**2**
5	-Distinguish between different types of Amphibia -Morphological & anatomical structure of Frog	**2**
6	-Differentiation between different class of Reptilia -Morphological & anatomical structure of *Chalcides*	**2**
7	Differentiation between different class of Aves -Morphological & anatomical structure of *Columba*	**2**
8	Differentiation between different class of Mammalia -Morphological & anatomical structure of *Oryctolagus*	
Total		

D. Teaching and Assessment

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

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
1.0	**Knowledge**		
1.1	Define, understand and classify different types of chordata animals (topics 1,2,3)	• **Continuous evaluation through interaction, and presentation of research projects.** • **presentation of summaries and reports during lectures.** • **Evaluation of**	• **Quiz 1** • **Midterm exam Final written exams.**

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
		assignments.	
1.2	Classify phylum chordata to their taxonomic groups according their morphological characteristics (topics 4,5,6,7,8)	• **Lectures** • **Debate and discussion.** • **Assignments (Co-operative & Individual assignments).**	• **Midterm exam** • **Final written exams.**
1.3	Identification of the anatomical description of animals within different classes of vertebrates and how to distinguish between them (topics2-8)		• **Quiz 2** • **Midterm exam** **Final written exams**
…			
2.0	**Skills**		
2.1	Differentiation between class Chondrichthyes and class osteichthyes (topic4)	• Continuous evaluation through interaction, and presentation of research projects. presentation of summaries and reports during lectures	• **Quiz** • **practical and midterm exams** • **Discuss students through lectures** • **duties and participate in the forums through e-learning site** • **Write reports on field visits** **Final written exam**
2.2	Distinguish between different types of amphibian & different class of reptiles (topics5&6)		
…	Differentiation between different class of Aves&Mammalia (topics7&8)		• **Quiz 2** **Final written exams**
3.0	**Competence**		
3.1	**Take responsibility for own learning and** professional development	• Evaluation of individual & group works. Observation Card	**Evaluation of individual & group works.**
3.2	**Work effectively in groups and exercise leadership when appropriate.**		
3.3	Present information clearly in both written and oral form.	Oral discussion Report evaluation	**-Oral discussion** **- Lab report evaluation**
3.4	Acquisition of skills in the dissection of some animals in the vertebrate division and the study of different	Formative evaluation, through written and practical tests during the semester.	**-Oral discussion** **- Lab report evaluation**

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
	members of each animal and comparing them with each other	• Practical tests to detect different forms of parasite, especially diagnostic stage • Examination of stool samples and find out the diagnostic stage of the parasite and doing different methods of diagnosis in the laboratory	

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Quiz2	13	10
4	Assignments, Activities & Attendance	During Semester	5
5	Final Practical Exam	14	10
6	Lab Reports	15	10
7	Final Written Theoretical Exam	17	50

***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 :

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- The presence of faculty members to provide advice, academic advice and academic guidance to the student in need within the six hours a week available to all students.

Arrange extra hours gifted students or Program for students who default in scholastic achievement .

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. List Required Textbooks • Sadava, Hillis, Heller and Berenbaum. 2009. Life: The Science of Biology. 9th edition. Sinauer (this text is also used in BIOL 101 and BIOL 102) • (أساسيات علم الحيوان. 1991 أمين رشدي ومحمود البنهاوي، دار البحوث العلمية. - The Chordates. (1989). Alexander, R. Cambridge University Press.

Essential References Materials	2. List Essential References Materials (Journals, Reports, etc.) • Sadava, Hillis, Heller and Berenbaum. 2009. Life: The Science of Biology. 9th edition. Sinauer (this text is also used in BIOL 101 and BIOL 102) • (أساسيات علم الحيوان. 1991 أمين رشدي ومحمود البنهاوي، دار البحوث العلمية .The Chordates. (1989). Alexander, R. Cambridge University Press
Electronic Materials	3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. a) http://animaldiversity.ummz.umich.edu/site/index.html b): http://nsdl.org/resources_for/university_faculty/ National Digital Library of Science
Other Learning Materials	4. Other learning material such as computer-based programs/CD, professional standards or regulations and software

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) • CLASSROOMS EQUIPPED WITH SMART BOARD AND DISPLAY SCREEN FOR (40) STUDENTS Practical labs provided with microscope and different equipment for (20-25) students
Technology Resources (AV, data show, Smart Board, software, etc.)	. Technology resources (AV, data show, Smart Board, software, etc.) Provision of computers for students training to be used in research on scientific topics that serve the course.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access,etc.)

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
-Built in university website on courses & student satisfaction questionnaire	-Presenting the results of a sample of students to an external reviewer	-Using (Black board) in teaching &student assignments
-Student discussion &dialogues	-Analyzing the results of students	Scientific trips
-Analysis &interpretations of student marks	-Follow-up of graduates after graduation	-Opening of channel of communication between the professor & the student
-Recording student suggestion for improvement through academic advices	-Using of active teaching	-Check marking by an independent members teaching staff of a sample of

Evaluation Areas/Issues	Evaluators	Evaluation Methods
&consultation meeting		student work

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes,Quality oflearning resources, etc.)
Evaluators (Students,Faculty, Program Leaders,Peer Reviewer, Others (specify)
Assessment Methods(Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Committee
Reference No.	
Date	

Course Specifications

Course Title:	**Virology**
Course Code:	**42011317**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Albaha university**

Table of Contents

A. Course Identification

1. Credit hours:	**3 hrs (2 lecture + 1 Practical)**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**5th level 3rd year**
4. Pre-requisites for this course (if any)**:**	**None**
5. Co-requisites for this course (if any)**:**	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	60	
2	**Blended**	5	
3	**E-learning**	5	
4	**Correspondence**		
5	**Other**	30	

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	5
4	**Others** (specify)	5
	Total	70
Other Learning Hours*		
1	**Study**	20
2	**Assignments**	10
3	**Library**	10
4	**Projects/Research Essays/Theses**	10
5	**Others** (specify)	10
	Total	60

* 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

This course is designed to give a broad overview of general characteristics of viruses, with

respect to structure and nature of viruses. The course encompasses: Cultivation, isolation, identification and quantitation of viruses .Also examples of bacteriophages ,plants, animals and human viruses are included in the course. Methods of infection of viruses .Phases of reproduction of viruses insides the host cell using advance laboratory techniques and observation of pathogenic viruses associated with the plants ,animals and human. Nature and mechanisms of production of viral vaccines, used against viral infections. And medical and economic importance of some types of viruses

2. Course Main Objective

• Introduce students to the basic concepts of virology, importance of viruses especially in genetics engineering fields. • Students should be able to remember and recognize some important types of viruses associated with plants • Expose students to the knowledge of medical and economic importance of different types of viruses. • Give students a broad training course about observation of viruses inside the host cell using advance biological techniques like PCR and other technique

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge:**	
1.1	• Understand the basics and theories of virology about the purification of viruses	K2
1.2	Explain the essential characteristics, different methods of parasitic infection of viruses within the host and mode of nutrition and growth of viruses.	K2
1.3	Recognize the nature, structure of viruses and methods to obtain and purify virus particles	K3
1.4	understand the different methods of observation and detection of viruses within different types of organisms.	K4
1.5	Mention medical and economics importance of some types of viruses and bacteria.	K4
2	**Skills :**	
2.1	Illustrate the viruses using laboratory technique	S1
2.2	Differentiate between the different types of viral diseases	S2
2.3	Distinguish the physiological nature of microorganisms, their structure, nutrition and growth.	S4
3	**Competence:**	
3.1	Using verbal and written communication to improve the knowledge, theoretical and practical information	C1
3.2	Analyze the information, Take responsibility for self-learning and professional development. Work effectively in groups and possess leadership qualities when appropriate	C1
3.3	Present and interpret results obtained using practical techniques.	C1
3.4	Evaluate and record the observation, quantitation and explanation of laboratory data	C1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction: will include the following topics: Introduction to virology. With concentration to general characteristics of viruses	6
2	The structure of virus	3
3	Cultivation of viruses and methods of studding and isolation of viruses	3
4	Studies on the quantification of viral particles	3
5	Studies about the examples of bacteriophages, plants, animals and human viruses	9
6	Infection methods of viruses and phases of reproduction of viruses inside .host cell	6
7	The natural immunity against virus infection	3
8	Advance laboratory techniques which are used for observation of viruses infects human, plants and animal	6
9	.Medical and economic importance of some types of viruses	3
10	Nature and mechanisms of production of viral vaccine used against viral infections	3
Total		

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	• Understand the basics and theories of virology about the purification of viruses	● Lectures ● Assignments (Individual assignments). ● Starting the course with information about the course contents , importance of virology course ,then other lecture contain the same points in relation to students general information	● Oral tests ● Course work ● Evaluation of assignments ● Practical tests. ● Quiz1 & Quiz2. ● Final written and practical exams.
1.2	Explain the essential characteristics, different methods of parasitic infection of viruses within the host and mode of nutrition and growth of viruses.	● Lectures ● Assignments (Individual assignments). ● Starting the course with information about the course contents , importance of virology course ,then other lecture contain the same points in relation to students general information	● Oral tests ● Course work ● Evaluation of assignments ● Practical tests. ● Quiz1 & Quiz2. ● Final written and practical exams.
1.3	Recognize the nature, structure of viruses and methods to obtain and purify virus particles	Individual course work for each lecture contents. ● Using library, Internet and advance research for doing course works.	● Oral tests ● Course work ● Evaluation of assignments ● Practical tests. ● Quiz1 & Quiz2. ● Final written and practical exams.
1.4	understand the different methods of observation and detection of viruses	Assignments (Co-operative) ● Cooperative Learning ● Working in small groups	● Oral tests ● Course work ● Evaluation of assignments ● Practical

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	within different types of organisms.	● group research	tests. ● Quiz1 & Quiz2. ● Final written and practical exams.
2.0	**Skills**		
2.1	Illustrate the viruses using laboratory technique	● Lectures ● Practical training ● Cooperative Learning ● Working in small groups Individual & group research	● Periodical short test. ● Course work ● Practical tests. ● Final written and practical exams.
2.2	Differentiate between the different types of viral diseases	from different types of research and scientific reports ● Lectures ● Debate and discussion. ● Assignments (Co-operative & Individual assignments). ● Cooperative Learning ● Working in small groups ● Individual & group research	Periodical short test. ● Course work ● Practical tests. ● Final written and practical exams.
2.3	Distinguish the physiological nature of microorganisms, their structure, nutrition and growth.	from different types of research and scientific reports ● Lectures ● Debate and discussion. ● Assignments (Co-operative & Individual assignments). ● Cooperative Learning ● Working in small groups ● Individual & group research	● Periodical short test. ● Course work ● Practical tests. ● Final written and practical exams.
3.0	**Competence**		
3.1	Using verbal and written communication to improve the knowledge, theoretical and practical information	Team work- Co-operative & Individual Assignments. Cooperative Learning. Discussion and solving problems	Periodical evaluation of individual & group works.
3.2	Analyze the information, Take responsibility for self-learning and professional development. Work effectively in groups and possess leadership qualities when appropriate	Scientific reports for practical course. ● Justification through practical and theoretical applications	Periodical evaluation of individual & group works.
3.3	Present and interpret results obtained using practical techniques.	Active teaching Practical training for studying the science of virology Writing of scientific reports ● Cooperative Learning Lab work	• Periodical evaluation of course work ,activities and research • Report evaluation • Short tests • Final exam
3.4	Evaluate and record the observation, quantitation and explanation of laboratory data	Active teaching Practical training for studying the science of virology Writing of scientific reports ● Cooperative Learning Lab work	Formative evaluation, through evaluation of practical applications , Practical tests, Scientific reports

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Quiz2	13	5
4	Assignments, Activities & Attendance	During semester	10
5	Final Practical Exam	16	10
6	Lab Reports	16	10
7	Final Written Theoretical Exam	17	50

***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 :

● The presence of faculty members to provide advice, academic advice and academic guidance to the student who is in need during the six hours a week, available to all students. ● Arrange extra hours for gifted students or Program additional time for students who are weak in academics and scholastic achievements.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	(: د /كامل مهدي التميمي, الاهليه للنشر و التوزيع ,جده 2004) أساسيات علم . • الفيروسات
Essential References Materials	Dimmock, N.J.A.J., Easton, and K.N. Leppard. 2007: Introduction to Modern Virology 6th ed. Blackwell Publishin. ISBN-13978-1405136457 • Carter, j. and Venetia (2005) Virology : principles and applications. John and John Wiley & Sons Ltd, London • Alan, J. C. (2005) Principles of Molecular Virology. Elsevier, Amsterdam. • Mahy WJ and Van Regenmortel MHV (eds) (2009). Desk Encyclopedia of General Virology. Oxford: Academic Press
Electronic Materials	• http://media.med.sc.edu/microbiology2007/ • http://nsdl.org/resourcesfor /university faculty • http://public.ornl.gov/hgmis/genetics
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms equipped with smart board and display screen for (40) students ● Practical labs provided with microscope and different equipment for (20-25) students

Item	Resources
Technology Resources (AV, data show, Smart Board, software, etc.)	Provision of computers for students training to be used in research on scientific topics that serve the course.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	●Electronic microscopes ● Adigital camera to photograph samples ● Centrifuges. ● Glass ware ● Incubators. ● A sensitive balance ● Chemicals & stains for viral isolation and sample preparations. ● -80 refrigerator to store the sample.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	students	To design a university website for the reports on courses and feedback on the level of satisfaction from students based on questionnaire- NCAAA course evaluation questionnaire. ● Student discussions and dialogues • To consider the student's suggestion for the improvement through academic advices and consultation meetings
Evaluation of Teaching	Independent Staff member and coordinator	Present a sample copy of the results of students to an external reviewer for revision. ● Analyzing the results of students. ● Internal reviewer. ● Workshops within the department. • To check the marking of a sample copy of student's work by an independent member of teaching staff. ● Periodic exchange and rechecking/revision of tests or a sample of assignments by the staff member at another institution
Student Achievement	staff member at another institution	Check the marking of a sample of student work by an independent member of teaching staff. ● Periodic exchange and remarking of tests or a sample of assignments by the staff at another institution ● Periodic evaluation of students results
course effectiveness	Staff member council course committeeand	● Periodical analyses for evaluation and comparisosn of the the results with reference source. ● Analytical study about the out –put of learning this course . ● Evaluation of the course in general. ● Evaluation of student and staff members teaching the course

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

Council / Committee	
Reference No.	
Date	

Course Specifications

Course Title:	**Phycology**
Course Code:	**42011319**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Al-Baha university**

Table of Contents

A. Course Identification

1. Credit hours: 3 hours (2 lecture+1 practical)
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: 5th level- 3rd year
4. Pre-requisites for this course (if any)**: None**
5. Co-requisites for this course (if any)**:None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		70%
2	**Blended**		5%
3	**E-learning**		5%
4	**Correspondence**		
5	**Other**		20%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	-
4	**Others** (specify)	-
	Total	60
Other Learning Hours*		
1	**Study**	60
2	**Assignments**	7
3	**Library**	10
4	**Projects/Research Essays/Theses**	10
5	**Others** (specify)	-
	Total	91

* 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

This course is designed to give a broad overview of general algae, with respect to identification and relationship with other biological groups , main characters, algal cell structure, morphological differences, algal ecology , reproduction methods, rules of algae classification ,evolutionary trends among algae genera , their relationship with both plant and animal Kingdoms, role of algae in aquatic ecosystem , economic importance and their broad utilizations

2. Course Main Objective

The objectives of this course are to:

- introduce students to the identification of algae and their relationships with the other biological groups;
- expose students to the knowledge of their main characters, algal cell structure ,main morphological differences , methods of reproduction and algal ecology;
- introduce students to identify the principles of algal classification and its importance
- algal evolutionary trends and their relationships with both plant and animal Kingdoms.
- give students a broad perception of the important role of marine algae in ecosystem, also economic importance and utilization.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Define, understand and explain meaning of algae, main characters, algal cell structure, main morphological differences, reproduction methods and ecosystems differences among algae.	K2
1.2	Recognize the basis of algal classification and their importance.	K2
1.3	Deduce the important role of algae in ecosystems, economic importance and utilization	K3
2	**Skills :**	
2.1	Apply the basis of algal classification depending on characters of different algal groups	S2
2.2	Compare between the different algal groups and Propose new methods for algal utilization	S2
2.3	Development of deducing skills Development of language skill Results and information collection skills	S3
2.4	Algal specimens' collection, microscope usage and drawing algal forms	S4
3	**Competence:**	
3.1	Work effectively in groups and exercise leadership when appropriate.	C1
3.2	Take responsibility for own learning and professional development	C4
3.3	Student responsibility and language skills	C4

C. Course Content

No	List of Topics	Contact Hours

1	**Introduction to identification and main characters of algae**	3
2	**Diferent ecosystems of algae and their localities**	3
3	**Morphological characters and cell structure of algae**	6
4	**Nutrition and reproduction of algae (sexual and asexual reproduction)**	3
5	**Rules of algae classification**	3
6	**Division Cyanophyta**	3
7	**Division Chlorophyta**	9
8	**Division Euglenophyta – Division Chrysophyta**	3
9	**Golden algae and Diatoms**	3
10	**Division phaeophyta – Division Rhodophyta**	3
11	**Biological and Economic importance of algae**	3
Total		

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	Define, understand and explain meaning of algae, main characters, algal cell structure, main morphological differences, reproduction methods and ecosystems differences among algae.	●Lectures and practical cources ●Debate and discussion ●scientific field trips ●Assignments (Co-operative & Individual assignments). ●Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. ●Midterm exam. Final written exams.
1.2	Recognize the basis of algal classification and their importance.	●PowerPoint presentation ●Scientific movies. ●Debate and discussion. ●Cooperative Learning ●Working in small groups Individual & group research	• Quiz1. • Quiz2 ●Final written theoretical exam.
1.3	Deduce the important role of algae in ecosystems, economic importance and utilization	●Lectures ●Debate and discussion. ●Assignments (Co-operative & Individual assignments). ●Research projects	●Midterm & final practical exam ●Oral exam
2.0	**Skills**		
2.1	Apply the basis of algal classification depending on characters of different algal groups	●Lectures and practical courses • Scientific movies • Debate and discussion. • Assignments (Co-operative & Individual assignments).	• Continuous evaluation throug • Interaction and presentation of research projects. • Presentation of summaries and reports during lectures. • Midterm exam. • Final written theoretical exam. Evaluation of

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			assignments
2.2	Compare between the different algal groups and Propose new methods for algal utilization	• Cooperative Learning • Working in small groups Individual & group research	●Quiz1 ●Quiz2 ●Final theoretical exam. ●Final practical exam.
2.3	Development of deducing skills Development of language skill Results and information collection skills	●Computers necessary for ●information and communication technology(ICT) ●Suitable method for references situation	●Student skill evaluation for computer usage ●Percent evaluation (5%) for different skills
2.4	Algal specimens' collection, microscope usage and drawing algal forms		
3.0	**Competence**		
3.1	Work effectively in groups and exercise leadership when appropriate.	• Working in small groups Individual & group researchers	●Evaluation of individual & group works.
3.2	Take responsibility for own learning and professional development	●Training on scientific drawing, reading slides and report Lab work Cooperative Learning	. ●Observation Card
3.3	Student responsibility and language skills	●Assignments-student presentation-reporting	●Report evaluation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Midterm practical Exam	9	10
4	Quiz2	14	5
5	Assignments, Activities & Attendance	During Semester	10
6	Final Practical Exam	16	10
7	Final Written Theoretical Exam	17	50
8			

***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 :

- The presence of faculty members to provide advice, academic advice and academic

guidance to the student in need within the six hours a week available to all students.
- Arrange extra hours gifted students or Program for students who default in scholastic achievement

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• علم الطحالب (2000) عبد العزيز السراني وآخرون- دار النشر الدولى-الرياض((2000 • Lee,E. (1990).Phycology by Robert Cambridge University Press Philip, Sze (1997). A Biology of the Algae .Mc Graw-Hill College
Essential References Materials	• H.C.bold& M.J. wynne, (1985) Introduction to the algae • How to know fresh water algae by G.W.prescott (1978) • -Ecology of fresh water : Brain Moss. • Algal Ecology: R.Jan Stevenson . Max.L.Both Well Rex L.Lowe. • Fresh water algae : G.W.Prescott. • Alexopoules, C.J. (1973).Myxomycetes in the fungi: An advanced treatise, IVB, 39-60. Editors: G.C Ainsworth, F.K. Sparrow & A.S. Sussman. New York and London: Academic Press. للنشر الخريجي الدعيجي واخرون- دار رلشد النباتية- عبد الله العينات تحضير أساسيات م)1997(الرياض -والتوزيع
Electronic Materials	WWW.google.com https://en.wikipedia.org/wiki/Algae http://www.algae net.com http://www.algaebase.org
Other Learning Materials	• CD-ROM • ●Microscopic slides

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Classrooms equipped with smart board • display screen for (40) students • Practical labs provided with microscope and different equipment for (20-25) students. • Over-head projector • TV. With learning videos Computers with internet connection
Technology Resources (AV, data show, Smart Board, software, etc.)	Four labs of computers and at least 25 students for each lab with DVD
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Optical microscopes - microscopic slides for algae examination • Microscope equipped with a digital camera to photograph samples • Centrifuges

Item	Resources
	• Electric oven for glasses sterelization • Incubators. • Chemicals for algae nutrient media preparation. • ELISA and a refrigerator to store the sample

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	• Built-in university website reports on courses and student satisfaction questionnaire-NCAAA course evaluation questionnaire. • Student discussions and dialogues • Recoding student suggestion for improvement through academic advices and consultation meeting Statistical analysis & interpretations of student marks
Effectiveness of teaching	Instructor/ department	• Presenting the results of a sample of students to an external reviewer. • Follow-up of graduates after graduation
Verifying standard of student achievement	Independent member teaching staff	Quiz1 •QUIZ2 • Check marking by an independent member teaching staff of a sample of student work. •Oral exams based on clear strategy
Improvement of Teaching		• Using of active teaching. • Using e-learning (Black board) in teaching and student assignments. • Scientific trips • Opening of a channel of communication between the Professor and the student. •Workshops within the department

Evaluation Areas/Issues	Evaluators	Evaluation Methods

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

Council / Committee	
Reference No.	
Date	

Course Specifications

Course Title:	**Archegoniate**
Course Code:	**42011321**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Al-Baha University**

Table of Contents

A. Course Identification

1.Credit hours:	3 hrs (2 lecture + 1 Practical)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	Fifth level, Third year
4. Pre-requisites for this course (if any)**: None**	
5. Co-requisites for this course (if any)**:** None	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	30	60%
2	**Blended**		5%
3	**E-learning**	4	5%
4	**Correspondence**		
5	**Other(Practical)**	15	30%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	-
4	**Others** (specify)	-
	Total	60
Other Learning Hours*		
1	**Study**	45
2	**Assignments**	7
3	**Library**	15
4	**Projects/Research Essays/Theses**	8
5	**Others**(specify)	10
	Total	85

***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

General description of the course:

After studying this course, the student must:

- Study the general characters of archegoniate,
- Know alternation of generation phenomenon and its types.
- Understanding general characters of bryophytes, ptreidophytes and gymnosperms and their respective comparison with angiosperms.

2. Course MainObjective

- In this Course the student must know the group of archegoniate, general characters, systematic position within plant kingdom (after algae and before higher plants). Also archegoniate deals with the study the evolution of life forms from the thaloid to leafy form. To know the evolution of stele in the plant kingdom and.
- 1 Conclusion of some ecological and economical application
- 2. Studying bryophytes, Ptreidophytes and gymnosperms. Know how to collect archegoniates from the environments..

3. Course Learning Outcomes

	CLOs	AlignedPLOs
	On successful completion of this course, students will be able to… (demonstrate/express/design	
1	**Knowledge:**	
1.1	Define the archegoniate	K1
1.2	Explain the structure of archegonium, gametophyte and sporophytes	K1
1.3	Recognize the phenomenon of alternation of generation	K1
1.4	Identify different groups of Archegoniate: Bryophyte-pteridophytes-gymnosperms	K1
2	**Skills :**	
2.1	Conclude the evolutive characters of each archegoniate group.	S2
2.2	Conclude the sporophyte evolution, (progressive independence) and gametophyte reduction	S2
2.3	Differentiate between archegoniate and other plant groups	S4
2.4	Illustrate microscopic thallus and reproductive structures in archegoniate	S4
3	**Competence:**	
3.1	Take responsibility for self-learning and professional development Work effectively in groups	C1
3.2	Develop the ability of students in dealing with technical ways and with internet	C3
3.3	Communicate effectively both in verbal and written form during educational discussions/ meetings on the various subjects of the course.	C4

C. Course Content

No	List of Topics	Contact Hours
1	Introduction on the evolution of living organisms and classification of kingdoms	4
2	General characters of archegoniate Archegoniate life cycles: evolutionary stages of alternation of generation	2
3	Systems of classification of archegoniate – comparison between bryophytes,	4

	pteridophytes and gymnosperms.	
4	General characters of bryophytes, classification, habitats and comparision of Bryophytes: Hepatophyta (division Liverworts),Hornworts (division Anthocerophyta) and Mosses (division Bryophyta)	4
5	Studies of examples of hepatophytes – evolution of gametophyte and sporophyte in *Ricia*, *Marchantia*, *Pelia* and *Anthocerous*	2
6	Studies of classification of bryophyte – studies of examples to study the evolution of gametophyte and sporophyte	2
7	General characters of pteridophytes	2
8	Types and position of sporangia – evolution of stele	2
9	classification of pteridophytes – evolution of sporophytes and reduction of gametophytes	2
10	Study of fossils, its types and methods of age determination	2
11	General characters of gymnosperms, its classification – studying some examples – comparison with angiosperms	4
Total		**30**

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	Define the archegoniate	• Lectures • Assignments (Co-operative & Individual assignments).	• Quiz 1 • Midterm exam • Final written exams
1.2	Explain the structure of archegonium, gametophyte and sporophytes	• Lectures • Scientific movies and animated life cycles. • Debate and discussion. • Assignments (Co-operative & Individual assignments)	• Quiz 1 • Midterm exam • Quiz2. • Final written exams. • Presentation evaluation by Rubric
1.3	Recognize the phenomenon of alternation of generation	• Lectures • PowerPoint presentation • Scientific movies and animations.	• Quiz 1 • Midterm exam • Quiz2. • Assignment evaluation by rubric
1.4	Identify different groups of Archegoniate: Bryophyte-pteridophytes-gymnosperms	• Lectures • PowerPoint presentation • Scientific movies and animations.	• Quiz 1 • Midterm exam • Quiz2. • Assignment evaluation by rubric
2.0	**Skills**		
2.1	Conclude the evolutive characters of each archegoniate group.	• Lectures • PowerPoint presentation. • Debate and discussion. • Assignments (Co-operative & Individual	• Midterm exam • Quiz2. • Final written exams. • Assignment evaluation by rubric

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		assignments). • Working in small groups	
2.2	Conclude the sporophyte evolution, (progressive independence) and gametophyte reduction	• Lectures • PowerPoint presentation • Scientific movies and animations.	• Quiz2. • Final written exams. • Presentation evaluation by Rubric • Assignment evaluation by rubric
2.3	Differentiate between archegoniate and other plant groups	• Debate and discussion. • Assignments (Co-operative & Individual assignments). • PowerPoint presentation	• Assignment evaluation by rubric
2.4	Illustrate microscopic thallus and reproductive structures in archegoniate	• Practical labs	• Practical exams • Lab report • Observation Card
3.0	**Competence**		
3.1	Take responsibility for self-learning and professional development Work effectively in groups	• Assignments	• Assignment evaluation by rubric
3.2	Develop the ability of students in dealing with technical ways and with internet	• Working in small group. • Participate in curricular and extracurricular activities.	• Assignment evaluation by rubric • Observation Card • Presentations
3.3	Communicate effectively both in verbal and written form during educational discussions/ meetings on the various subjects of the course.	• Power point presentation • Lab Reports	• Presentation evaluation by rubric • Lab reports evaluation by Rubric

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Quiz2	13	5
4	Assignments, Activities & Attendance	During Semester	10
5	Final Practical Exam	15	10
6	Lab Reports	15	10
7	Final Written Theoretical Exam	16	50

***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 :

- The presence of faculty members to provide advice, academic advice and academic guidance to the student who is in need during the six hours a week, available to all students.
- Arrange extra hours for gifted students or program additional time for students who are

weak in academics and scholastic achievements.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Ruggiero MA, Gordon DP, Orrell TM, Bailly N, Bourgoin T, et al. (2015). A Higher Level Classification of All Living Organisms. PLOS ONE 10(6): e0130114.
Essential References Materials	• الأرشيجونيات: د. عفاف بدوى تاريخ النشر: 1/1/2009دار النشر مكتبة المتنبى • مقدمة فى الأرشيجونيات للدكتور نادى أحمد البسيونى : القاهرة 1996 • النباتات الوعائية غير البذرية للدكتور أحمد محمد مجاهد :الرياض 1996
Electronic Materials	• https:// dx.doi.org/10.1371/journal.PONE • https//www.ncbi.nlm.nih.gov/pubmed/articles

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1) Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) 2) Classrooms equipped with smart board and display screen for (40) students 3) Practical labs provided with microscope and different equipment for (20-25) students.
Technology Resources (AV, data show, Smart Board, software, etc.)	1) Computer 2) Smart board 3) Provision of computers for students training to be used in research on scientific topics that serve the course.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty and Program Leaders	-In direct: Built-in university website reports on courses and student satisfaction questionnaire-NCAAA course evaluation questionnaire. -Direct: Analysis & interpretations of student marks Indirect:(students)-direct:(Program Leaders
Effectiveness of assessment	Members of teaching staff, Peer Reviewer and students	Direct: Department exam committee by using course blueprint- Peer Reviewer-The form for meetinga course test for test standards.

Evaluation Areas/Issues	Evaluators	Evaluation Methods
		Indirect: Students course evaluation questionnaire
Extent of achievement of course learning outcomes	Program-coordinator, Peer Reviewer and Evaluation Committee.	Direct: Exams, standard exams and Evaluation Commissions exams
Quality of learning resources	Students and members of teaching staff	Indirect: Students course evaluation questionnaire

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes,Quality oflearning resources, etc.)
Evaluators (Students,Faculty, Program Leaders,Peer Reviewer, Others (specify)
Assessment Methods(Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Committee
Reference No.	
Date	

Course Specifications

Course Title:	**Parasitology**
Course Code:	**42011323**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Albaha University**

Table of Contents

A. Course Identification

1.Credit hours:	3 hrs (2 lecture + 1 Practical)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	Fifth level, Third year
4. Pre-requisites for this course (if any)**:**	Invertebrates (31011245)
5. Co-requisites for this course (if any)**:**	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	26	57.77%
2	**Blended**		
3	**E-learning**	4	8.88%
4	**Correspondence**		
5	**Other (Practical)**	15	33.33%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	-
4	**Others** (specify)	-
	Total	60
Other Learning Hours*		
1	**Study**	45
2	**Assignments**	7
3	**Library**	15
4	**Projects/Research Essays/Theses**	8
5	**Others** (specify)	10
	Total	85

* 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

This course was designed to study the basic groups of parasites that affect humans and demotic animals. It contains introduction of parasitology, the relationship between the parasite and their hosts, general Epidemiology terms, methods of transmission, diagnosis ,symptoms and control of parasites, classification of different parasites and their life cycle in addition to the knowing the medical and economic importance of the parasites and to identify the different groups of parasites.

2. Course Main Objective

After studying this course, the student is expected to be able to know the basic groups of parasites that affect humans and demotic animals, the relationship between the parasite and their hosts, the methods of transmission, diagnosis and symptoms, classification of different parasites and their life cycle in addition to the knowing the medical and economic importance of the parasite.

3. Course Learning Outcomes

CLOs		Aligned PLOs
	On successful completion of this course, students will be able to… (demonstrate/express/design	
1	**Knowledge:**	
1.1	Define the concept of parasitism, the types of hosts and the effects of parasitism on the host	K1
1.2	Mention the diseases caused by different parasites, habitat of parasite, mode of transmission (infection) and infection prevention & control of parasites.	K2
1.3	Recognize of the life cycles of parasites and the different stages of parasites	K3
2	**Skills :**	
2.1	Discuss the reasons for parasitic disease prevalence and their epidemiology	S1
2.2	Explain and give examples of different methods of parasite diagnosis	S2
2.3	Compare between the types of liver worms, schistosoma, tapeworms and their groups	S2
2.4	classifies and distinguishes between different types of parasites and families	S4
2.5	Draw life cycle of some parasites and their different phases	S4
3	**Competence:**	
3.1	Take responsibility for self learning and professional development	C1
3.2	Work effectively in groups	C2
3.3	Communicate effectively both in verbal and written form during educational discussions/ meetings on the various subjects of the course.	C4

C. Course Content

No	List of Topics	Contact Hours
1	Introduction: will include the following topics: Parasitism and Parasite Groups. Types of Biological Relationships.	4

	Adaptation for Parasitic Life. Habitats of Parasites Types of Parasites and their Hosts Patterns of Parasite Life Cycles Epidemiology of Parasitic Diseases Host Responses Against Parasites	
2	Host recognition by parasite, the host's susceptibility to the parasite, and Modes of parasite transmissions	4
3	Studies of classification, the life cycle, epidemiology, treatment and control of: □ □ Subkingdom Protozoa: *Entamoeba histolytica , Entamoeba coli, Entamoeba dispar and Acanthamoeba sp.*	4
4	Studies of classification, the life cycle, epidemiology, treatment and control of: • Subkingdom Protozoa: *Giardia lamblia, Trichomonas vaginalis, Trypanosoma sp.* and *Leishmania sp.*	4
5	Studies of classification, the life cycle, epidemiology, treatment and control of: • Subkingdom Protozoa: *Plasmodium sp., Balantidium coli , Toxoplasma gondii.*	8
6	Studies of classification, the Lifecycle, epidemiology, treatment and control of: • Phylum Platyhelminthes: Monogenea and Digenea (*Fasciola gigantica, Fasciola hepatica* and *Clonorchis sinensis*)	4
7	Studies of classification, the Lifecycle, epidemiology, treatment and control of: • Phylum Platyhelminthes: Blood flukes *(Schistosoma haematobium, Schistosoma manoni* and *Schistosoma japonicum*) intestinal flukes (*Heterophyes heterophyes*).	4
8	Studies of classification, the Lifecycle, epidemiology, treatment and control of: • Phylum Platyhelminthes: Cestoda (Comparison between Cyclophyllidea and Pseudophyllidea), *Taenia saginata, Taenia solium, Hymenolepis nana* .	4
9	Studies of classification, the Lifecycle, epidemiology, treatment and control of: Phylum Platyhelminthes: Cestoda (*Echinococcus granulosus, Diphyllobothrium latum*)	4
10	Phylum: Acanthocephala	4
11	Studies of classification, the Lifecycle, epidemiology, treatment and control of: Phylum Nematoda: *Ascaris lumbricoides, Entrobious vermicularis , Ancylostoma duedenale* and *Trichuris trichiura*	8
12	Studies of classification, the Lifecycle, epidemiology, treatment and control of: Phylum Nematoda: *Trichinella spiralis, Wchereia bancrofti* and *Onchocerca volvulus*	4
13	Control and treatment of parasitic diseases and the economic importance of parasites and their effects on the productivity of the individual	4
Total		60

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	Define the concept of parasitism, the types of hosts and the effects of parasitism on the host	• Lectures • Assignments (Co-operative & Individual assignments). • Debate and discussion..	• Quiz 1 • Midterm exam • Final written exams
1.2	Mention the diseases caused by different parasites, habitat of parasite, mode of transmission (infection) and infection prevention & control of parasites.	• Lectures • PowerPoint presentation • Scientific movies and animated life cycles. • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Scientific movies and animated life cycles.	• Quiz 1 • Midterm exam • Quiz2. • Final written exams. • Presentation evaluation by Rubric • Assinment evaluation by rubric
1.3	Recognize of the life cycles of parasites and the different stages of parasites	• Lectures • PowerPoint presentation • Scientific movies and animated life cycles.	• Quiz 1 • Midterm exam • Quiz2. • Final written exams. • Presentation evaluation by Rubric • Assinment evaluation by rubric
2.0	**Skills**		
2.1	Discuss the reasons for parasitic disease prevalence and their epidemiology	• Lectures • PowerPoint presentation • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Working in small	• Final written exams. • Assignment evaluation by rubric

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		groups	
2.2	Explain and give examples of different methods of parasite diagnosis	• Lectures • PowerPoint presentation	• Quiz 1 • Midterm exam • Quiz2. • Final written exams..
2.3	Compare between the types of liver worms, schistosoma, tapeworms and their groups	• Lectures • Debate and discussion. • Assignments (Co-operative & Individual assignments). • PowerPoint presentation	• Midterm exam • Quiz2. • Final written exams. • Assignment evaluation by rubric
2.4	classifies and distinguishes between different types of parasites and families	• Practical labs • PowerPoint presentation	• Practical exams
2.5	Draw life cycle of some parasites and their different phases	• Practical labs	• Practical exams • Observation Card
3.0	**Competence**		
3.1	Take responsibility for self learning and professional development	• Home works • Individual & group research • •	• Assignment evaluation by rubric
3.2	Work effectively in groups	• Teaching and working in small groups. • Participate in class and non class works	• Assignment evaluation by rubric • Observation Card
3.3	Communicate effectively both in verbal and written form during educational discussions/ meetings on the various subjects of the course.	• .Home works • Debate and discussion -Individual & group research	• Assignment evaluation by Rubric • Presentation evaluation by rubric

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Written Theoretical Exam	9	10
3	Quiz2	13	5
4	Assignments, Activities & Presentations	During Semester	10
5	Final Practical Exam	16	10

#	Assessment task*	Week Due	Percentage of Total Assessment Score
6	Lab Reports	16	10
7	Final Written Theoretical Exam	17	50

***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 :

- The presence of faculty members to provide advice, academic advice and academic guidance to the student who is in need during the six hours a week, available to all students.
- Arrange extra hours for gifted students or program additional time for students who are weak in academics and scholastic achievements.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Paniker's Textbook of Medical parasitology, 7th Edition (2013) PARIJA, Subhash Chandra -Textbook of medical Parasitology, Protozoology & Helminthology. (Text an Colour atlas). Third edition (reprint). New Delhi, All India Publishers & Distributors, 2008.
Essential References Materials	• Garcia, LS. 2007. Diagnostic Medical Parasitology, 5th ed, ASM Press, Washington, DC • Garcia, LS. 2009. Practical Guide to Diagnostic Parasitology, 2nd ed, ASM Press, Washington, DC • Chiodini, Peter L. (2003): Atlas of Medical Helminthology and Protozoology. Publisher: Churchill Livingstone. Publish Date : 2003. Publish Place : New York. • Cox, F.E. (1993) Modern Parasitology. 2nd ed. Marston Book Services Limited, Oxford • Smyth, J.D. (1994) Introduction to animal parasitology. 3rd ed. Cambridge Univ. Press, Cambridge • Joseph Marr, J. and Komuniecki, W. (2003) Molecular Medical Parasitology. Elsevier Science Ltd. USA • مقدمة في علم الطفيليات (2010): عبدالاله باناجه وآخرون. جامعة الطائف. • اساسيات علم الطفيليات (2009):اسماعيل مسلم عبد العال. المكتبة الأكاديمية • علم الطفيليات الطبيةMedical Parasitology.(203). تأليف : د. والتر بيك و د. جون ديفيز ... J. Walter Beck, John E. Daviesترجمة: د. محمد خير الحلبي مراجعة: مركز تعريب العلوم الصحية. الطفيليات الطبية وناقلات الأمراض(1988) :الشهاوي، محمد الصادق عرفة. الطبعة الأولى – مكتبة مصباح – جدة.
Electronic Materials	• Parasitology web sites: http://www.mcgill.ca/chpi/links/parawebs/ • CDC's parasite image library: http://www.dpd.cdc.gov/DPDx/HTML/Image_Library.htm • Parasitology

	Images: http://www.medicine.cmu.ac.th/dept/parasite/image.htm • Protozoa as Human Parasites: http://www.microbiologybytes.com/introduction/Parasitology.html • Medical Parasites: http://www.southampton.ac.uk/~ceb/Diagnosis/Vol1.htm • Parasite world:http://parasites-world.com/ • Parasitology web sites:https://www.mcgill.ca/chpi/links/parawebs • Overview of Parasitology:http://parasite.org.au/para-site/introduction/introduction-essay.html • Centers for Disease Control and Prevention:https://www.cdc.gov/ • كما يوجد مواقع يوتيوب ورسوم متحركة يمكن الاطلاع عليها ومنها: • http://www.goatbiology.com/animations/fasciola.html https://www.youtube.com/watch?v=-S3DHdP-gXU
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) 2-Classrooms equipped with smart board and display screen for (40) students 3-Practical labs provided with microscope and different equipment for (20-25) students.
Technology Resources (AV, data show, Smart Board, software, etc.)	1-Computer 2-Smart board 3-Software for parasites life cycles and diagnostic stages
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	1- Microscope equipped with a digital camera to photograph samples 2- ELISA for parasitic antibodies analysis

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty and Program Leaders	Indirect:(students)-direct:(Program Leaders
Effectiveness of assessment	Members of teaching staff, Peer Reviewer and the students	Direct: Department exam committee by using course blueprint- Peer Reviewer-The form for meeting a course test for test standards Indirect: Students course evaluation questionnaire
Extent of achievement of course learning outcomes	Program-coordinator, Peer Reviewer and Evaluation Commissions	Direct: Exams, standard exams and Evaluation Commissions exams

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Quality of learning resources	Students and members of teaching staff	Indirect

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

Council / Committee	Department Committee
Reference No.	
Date	