Course Specifications

Course Title:	**Genetics**
Course Code:	**42011222**
Program:	**Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**AL BAHA university**

Table of Contents

A. Course Identification

1. Credit hours: 3hours(2Lecture+ 1 Practical)							
2. Course type							
a.	University		College		Department	√	Others	
b.	Required	√			Elective			
3. Level/year at which this course is offered: 4th level							
4. Pre-requisites for this course (if any)**:** **Cytology 42011217**							
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**	32 hours	70%
2	**Blended**	2 hours	5%
3	**E-learning**	2 hours	5%
4	**Correspondence**		
5	**Other (20%Practical)**	9 hours	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**	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

- Understanding the Genetic factors (Genotype and Phenotype) and causes to study Genetics.
- Understanding the basics of Mendelian Genetics.
- Study the structure and functions of Chromosomes.
- Study genetic mutations and their causes.
- Prove that the DNA is the genetic material.
- Understanding the molecular structure of DNA, its duplication, RNA replication and Gene expression (Protein synthesis).
- Understanding the molecular basis of gene variations.

Understanding the factors determine the population gene variations and their consequences of their development.

2. Course Main Objective

1. What is the main purpose for this course?

Introduce students to the basic concepts of Genetics (its branches and different applications) and knowledge an introduction to Molecular Genetics.

2. Briefly describe any plans for developing and improving the course that are being implemente

- Updates in course content can be made using recent research in this area.
- Briefly outline which plans are being implemented to develop and improve the course. (Such increased use of IT or Internet references, and changes in content as a result of new research the field of study).
- The course is developed and improved using appropriate means such as specialized webs such as:

A) **http://www.nature.com/scitable**

- **http://public.ornl.gov/hgmis/genetics/default.cfm**
- **www.google.com**

B) المكتبة العلمية الرقمية العالمية
http://nsdl.org/resources_for/university_faculty/

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Determine genetic basis of inheritance	K1
1.2	Summarize chromosome aberrations and mutations	K1
1.3	Review of DNA and RNA molecular structures, DNA Duplication and cytogenetics	K3
2	**Skills :**	
2.1	Apply mendelian genetic laws: monohybrid and dihybrid crosses: Autosomal and sex-linked genes: Dominance case	S1
2.2	Compare DNA and RNA molecular structures and explain Chromosome structure	S2
2.3	Distinguish between gene and chromosome mutations and their causes	S4

CLOs		Aligned PLOs
2.4	Explain genetic development of population	S4
3	**Competence:**	
3.1	Take responsibility for own learning and professional development	C1
3.2	Work effectively in groups and exercise leadership when appropriate.	C2
3.3	Present information clearly in both written and oral form.	C2

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Genetics :** ▪ the importance to study the genetics ▪ Heredity and Genetic factors (Genotype and Phenotype) ▪ Relationship between genetics and other biological sciences	**3**
2	**Mendelian-Genetics:** ▪ Mendel's Experiments ▪ Dominance and recessive inherited alleles ▪ First and second laws of Mendel. ▪ Complete Dominance	**3**
3	**Cytogenetics:** ▪ Chromosome number, shape and structure. ▪ Cell cycle. ▪ Cell Divisions (Mitosis and Meiosis)	**6**
4	**Autosomal and sex chromosomes diseases:** ▪ sickle-cell disease, hemophilia, Duchenne muscular dystrophy ▪ Rickets, Inherited diabetes mellitus and blood grouping	**6**
5	**Chromosomal Aberrations:** Numerical and structural aberrations	**3**
6	**Somatic chromosome mutation diseases and gene mutations** ▪ Down Syndrome, Patau's Syndrome, Edward's Syndrome, ▪ Cri du Chat Syndrome and William Syndrome . ▪ Sex chromosome mutation diseases:	**6**

	▪ Turner's Syndrome and Klinefelter's Syndrome (XXY) and (XX X). ▪ Point mutations ▪ Mutant agents	
7	**Chemical Basis of Genetics:** ▪ Prove that the DNA is the genetic material ▪ Characters of the genetic material.	**3**
8	**The molecular structure of DNA and RNA**	**3**
9	**DNA replication and molecular structure of the chromosome**	**6**
10	**Population Genetics and Genetic development**	**6**
Total		**45**

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	Determine genetic basis of inheritance	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
1.2	Summarize chromosome aberrations and mutations	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
1.3	Review of DNA and RNA molecular structures, DNA Duplication and cytogenetics	• Lectures • Debate and discussion	• Continuous evaluation through interaction, and presentation of research

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		• Assignments (Co-operative & Individual assignments). Working in small groups	projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
2.0	**Skills**		
2.1	Apply mendelian genetic laws: monohybrid and dihybrid crosses: Autosomal and sex-linked genes: Dominance case	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
2.2	Comparing DNA and RNA molecular structures and explain Chromosome structure	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
2.3	Distinguish between gene and chromosome mutations and their causes	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam. Final written exams
2.4	Explain genetic development of population	• Lectures • Debate and discussion • Assignments (Co-operative & Individual assignments). Working in small groups	• Continuous evaluation through interaction, and presentation of research projects. • Presentation of summaries and reports during lectures. • Evaluation of assignments. • Quiz1 & Quiz2. • Midterm exam.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			Final written exams
3.0	**Competence**		
3.1	Take responsibility for own learning and professional development	Team work- Assignments- student presentation- reporting- Scientific media- Training on scientific drawing, reading slides and reporting-Lab work Co-operative & Individual assignments. Cooperative Learning	Evaluation of individual & group works. Observation Card
3.2	Work effectively in groups and exercise leadership when appropriate.	Team work- Assignments- student presentation- reporting- Scientific media- Training on scientific drawing, reading slides and reporting-Lab work Co-operative & Individual assignments. Cooperative Learning	Evaluation of individual & group works. Observation Card
3.3	Present information clearly in both written and oral form	Develop the ability of students to reach information easily in the network.	Oral discussion Report evaluation Observation cards

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 Written Practical Exam	9	10
4	Quiz 2	14	5
5	Assignments, Activities & Attendance	During semester	10
6	Final Practical Exam	15	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 :

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	Sunstand, D. P. and M. J. Simmons. 2008. Principles of Genetics 5th ed. Wiley. ISBN-13: 978-0470388259**.**
Essential References Materials	- Bolsover, S.; Hyams, J.; Shephard,E.; White, H. and Wiedemann, G. (2004) Cell Biology. 2nd ed. Wiley-Liss Publication, Canada. - Lodish, B; Matsudaira, K.; Scott, K and Zipursky,D. (2009) Molecular cell biology. 5th ed. Wiley-Liss USA - Hugh Fletcher and Ivor Hickey, Genetics (4th Edition) Bios instant notes, Garland Science, Tayloyand Francis Group (2013), London. **مقدمة في علم الوراثة، عائضة وصفي عبد الهادي (2005) – دار الشروق للنشر والتوزيع**
Electronic Materials	• http://animaldiversity.ummz.umich.edu/site/index.html • المكتبة الرقمية الوطنية للعلوم: http://nsdl.org/resources_for/university_faculty/ • Best Molecular and Cell Biology Apps and Websites • https://m.commonsense.org/.../best-molecular-and-cell-biology-apps • The Molecular Biology Society of Japan: MBSJ English www.mbsj.jp/en Cell and Molecular Biology Online www.cellbio.com
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	- Classrooms equipped with smart board and display screen - Number of disks in classrooms enough for all students -Practical labs provided with microscope and different equipment
Technology Resources (AV, data show, Smart Board, software, etc.)	One light microscope and Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Microscope equipped with a digital camera to photograph samples. - Centrifuge - Light Microscope - Water Path - Equipment necessary to Chromosomal preparation

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	students	Student discussions and dialogues Recoding student suggestion for improvement through academic advices and consultation meeting Analysis & interpretations of student marks
Effectiveness of Teaching	Instructor/department	• Presenting the results of a sample of students to an external reviewer. • Analyzing the results of students. • Follow-up of graduates after graduation. • Periodical revision of the Course Specification models . check marking by an independent member teaching staff of a sample of student work

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:	**Plant Anatomy**
Course Code:	**42011212**
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 theorical + 1 Practical)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Fourth level / Second year**
4. Pre-requisites for this course (if any)**:**	Plant morphology (42011211)
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**	12	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**	15
2	**Assignments**	15
3	**Library**	15
4	**Projects/Research Essays/Theses**	-
5	**Others** (specify)	-
	Total	45

***** 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 study the different plant tissues, the internal structure of plant organs and studying the relationship between the anatomical structure of each organ and its biological function. Also it is interested in studying of the types and functions of the different plant tissues and the effect of the environment on the anatomical structure of the plant.

2. Course Main Objective:

This course aims to introduce students to the different plant tissues and the internal structure of the plant organs.

- Knowledge the relationship between the anatomical structure of each organ and its biological function.
- Studying the types and functions of the different plant tissues.
- Studying the anatomical structure of dicotyledonary plants.
- Studying the anatomical structure of monocotyledonary plants.
- Studying the secondary thickening in both Dicots and Monocots plants.
- Secondary structure in Gymnosperms (naked seeds plants).
- Effect of the environment on the anatomical structure of the plant.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge:**	
1.1	Identify different types of plant tissues and functions.	K1
1.2	Discuss the anatomical structure of plant organs and their its modification for Environmental adaptation	K1
1.3	Identify types of thickening in the plant.	K3
2	**Skills :**	
2.1	Recognize the different types of plant tissues	S1
2.2	Compare between the anatomical structures of the plant organs and their its modification for Environmental adaptation	S2
2.3	Recognize the types of thickening in the plant	S4
2.4	Examine and draw cross sections of different organs in plants.	S4
2.5	Examine and draw the anatomical modification for environmental adaptation	S4
3	**Competence:**	
3.1	Acquired continuous responsibility for self-learning and professional development	C1
3.2	Develop the skills of dealing with others and taking responsibility, and respect the opinion of others while doing research and conducting laboratory experiments.	C3

C. Course Content

No	List of Topics	Contact Hours
1	**History and introduction to plant anatomy science, its importance and its relation to other plant sciences.**	4
2	**Plant tissues, types, classification and functions.**	8
3	**Transport vessels in plants: types and anatomical variation**	4
4	**Anatomical structure of the roots (Monocot and Dicot plants)**	4
5	**Anatomical structure of the stems (Monocot and Dicot plants)**	4
6	**Anatomical structure of leaves (Monocot and Dicot plants).**	4
7	**Growth or secondary thickening in plants – vascular cambium and phellogen - growth rings.**	8
8	**Primary and secondary thickening in Monocot plants.**	4
9	**Secondary thickening in Dicot plants.**	4
10	**Abnormal secondary thickening.**	4
11	**Secondary structure of Gymnosperms (naked seeds plants).**	4
12	**Study of some anatomical structures exhibited by plants for adaptation with the surrounding environment.**	8
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	Identify different types of plant tissues and functions.	• Lectures • Research and survey. • Collaborative learning. • Using power point presentation	• Quiz 1 • Midterm exam • Final written exams
1.2	Discuss the anatomical structure of plant organs and their its modification for Environmental adaptation	• Lectures • Research and survey. • Collaborative learning. • Using power point presentation	• Quiz 1 • Midterm exam • Quiz2. • Final written exams.
1.3	Identify types of thickening in the plant.	• Lectures • Research and survey. • Collaborative learning. • Using power point presentation	• Midterm exam • Quiz2. • Final written exams.
2.0	**Skills**		
2.1	Recognize the different types of plant tissues	• Lectures • Research and survey. • Collaborative learning. • Using power point presentation	• Quiz 1 • Midterm exam • Final written exams
2.2	Compare between the anatomical structures of the	• Lectures • Research and survey.	• Quiz 1 • Midterm exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	plant organs and their its modification for Environmental adaptation	• Collaborative learning. • Using power point presentation	• Quiz2. • Final written exams.
2.3	Recognize the types of thickening in the plant	• Lectures • Research and survey. • Collaborative learning. • Using power point presentation	• Midterm exam • Quiz2. • Final written exams.
2.4	Examine and draw cross sections of different organs in flowering plants.	• Practical labs	• Practical exams • Lab Reports evaluation by rubric
2.5	Examine and draw the anatomical modification for enviromental adaptation	• Practical labs	• Practical exams • Lab Reports evaluation by rubric
3.0	**Competence**		
3.1	Acquired continuous responsibility for self-learning and professional development	• Assignments • Research and survey.	• Assignment evaluation by rubric • Observation Card
3.2	Develop the skills of dealing with others and taking responsibility, and respect the opinion of others while doing research and conducting laboratory experiments.	• Research and survey. • Collaborative learning. • Managing dialogue and discussion • Participate in curricular activities.	• Assignment evaluation by rubric • Observation Card

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 staff members to provide advice, and academic guidance to the student in need of it within six hours a week open to all students.
- Schedule extra hours with students who need it outside of the school hours of study or defaulters to prepare their own programs.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	أ. د. علي أحمد سالم الرباعي & أ. د. حسن سعيد مبارك الزهراني & د. فرج عبد الله الغامدي & أ. فريد سعدي أبو زينة (2016) بيولوجيا النبات العام. قسم علوم الأحياء كلية العلوم جامعة الملك عبد العزيز-خوارزم العلمية للنشر والتوزيع- فهرسة الملك فهد الوطنية.
Essential References Materials	• Plant anatomy: an appliedapproach Cutler, D. F., Botha, T.,Stevenson, D. W. 2008.Oxford: Blackwell Publishing. • Esau's Plant Anatomy,Meristems, Cells, andTissues of the Plant Body:their Structure, Function,and Development. 3rd edn. Evert RF. 2006.New Jersey: John Wiley &Sons, Inc. • العروسي، ح. ووصفي، ع. ح. (2000). مورفولوجيا وتشريح النبات. مكتبة المعارف الحديثة – الاسكندرية – مصر • د. متولي عبد العظيم متولي و د. احمد علي ابوعمرو الغامدي (2005) مورفولوجيا وتشريح النبات الزهري ، دار الاندلس للنشر والتوزيع، حائل، • وصفي، ع. ح. (1997). مورفولوجيا وتشريح النبات. دار المطبوعات الحديثة - الاسكندرية – مصر
Electronic Materials	• http://animaldiversity.ummz.umich.edu/site/index.html • http://biology.tutorvista.com/plant-kingdom/plant-anatomy.html • http://highered.mheducation.com/sites/0072510846/index.html • http://nsdl.org/resources_for/university_faculty/ • http://www.enchantedlearning.com/subjects/plants/plant/ • https://en.wikipedia.org/wiki/Plants_for_a_Future • http://www.biologyreference.com/ • https://en.wikipedia.org/wiki/Postcode_Plants_Database
Other Learning Materials	– Journal of plant anatomy and morphology – International journal of plant sciences

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Suitable classrooms. • Equipped laboratories. • Comfortable seats for students.
Technology Resources (AV, data show, Smart Board, software, etc.)	• Overhead projector. • TV sets and educational videos. • PC • Smart board.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Optical microscopes • Magnification lens • Microscopic slides for plant tissues and sections in plant organs

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Members of teaching staff, Program Leaders	**Direct: (Members of teaching staff, Program Leaders):** • The use of colleagues and independent evaluation of the standards achieved by students. • Random sampling and re-evaluation. **Indirect:(students):** • Meeting a number of students studying the course and expressing their opinions about the evaluation of the teaching process • Giving Students the effectiveness of teaching evaluation questionnaire
Effectiveness of assessment	Members of teaching staff, Peer Reviewer and the students	**Direct: Members of teaching staff, Peer Reviewer** • Using course blueprint- Peer • The form for meeting a course test for test standards. **Indirect: Students**: • Giving Students the effectiveness of assessment evaluation questionnaire
Extent of achievement of course learning outcomes	Program-coordinator, Peer Reviewer and Evaluation Commissions	**Direct:** • Analyzing and interpreting students' grades in the test for each CLOs • Evaluation Commissions exams for achievement of CLOs
Quality of learning resources	Students and members of teaching staff	**Direct (members of teaching staff):** • Surveying the opinions of faculty members who are teaching the course to learn their views and suggestions for its development. • A comparison between this course and the same course in other universities. **Indirect (Students)** Giving Students the quality of learning resources evaluation questionnaire

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:	**Histology**
Course Code:	**42011214**
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:	Fourth Level, Second Year
4. Pre-requisites for this course (if any)**:**	Cytology (42011217)
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 (Practical)**	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**	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

After studying this course, the student is expected to be able to know the following:

1- Histology and the types of different animal tissues.

2-Properties, structures and types of epithelial tissues.

3- Properties, structures and types of connective tissues.

4- Properties, structures and types of muscular and nervous tissues.

5-Histological design of animal organs (e.g.

esophagus,stomach,intestines,liver,pancreas,trachea,lungs ect.

2. Course Main Objective

The main objectives of this course are:

- Identification of different types of animal tissues.
- To Study histology and functions of some animal organs.

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 structures of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	K3
1.2	Mention the functions and the types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	K3
1.3	Recognize of types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	K3
2	**Skills :**	
2.1	Explain and give examples of different types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	S1
2.2	Compare between different types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	S2
2.3	Explain and compare between different types of the histological structure of animal organs	S2
2.4	Discuss and distinguish between different types of the histological structure of animal organs	S4
2.5	Draw sections of both different types of animal tissues and different types of the histological structure of animal organs	S4
3	**Competence:**	
3.1	Take responsibility for self-learning and professional development	C1
3.2	Work effectively in groups	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 to Histology, types of animal tissues**	4
2	**Epithelial tissues: classification and properties** -Simple epithelial tissues.	4
3	**Types of stratified epithelial tissues and modifications of epithelial tissues**	4
4	**Glandular epithelial tissues and types of the glands**	4
5	**Properties and classification of the connective tissues.**	4

	Types and structures of proper connective tissues	
6	**Types and structures of skeletal connective tissues: cartilage and bone**	4
7	**Types and structures of vascular connective tissues: Blood**	4
8	**Muscular tissues: Structure of muscular fiber, striated, non-striated and cardiac muscles**	4
9	**Nervous tissues: structure and types of neuron**	4
10	**Histology of Vascular tissues: Veins & Arteries**	4
11	**Histology of digestive tract: esophagus, stomach and intestines**	4
12	**Histology of liver and pancreas**	4
13	**Histology of trachea and lungs**	4
14	**Histology of kidneys and gonads(testes and ovaries)**	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 structures of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	• Lectures • Assignments (Co-operative & Individual assignments). • Debate and discussion.	• Quiz 1 • Midterm exam • Final written exams
1.2	Mention the functions and the types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	• Lectures • 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. • Assignment evaluation by rubric
1.3	Recognize of types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	• Lectures • PowerPoint presentation • Scientific movies and animated life cycles.	• Quiz 1 • Midterm exam • Quiz2. • Final written exams. • Presentation evaluation by Rubric • Assignment evaluation by rubric
2.0	**Skills**		
2.1	Explain and give examples of different types of animal tissues (epithelial tissues, connective tissues, muscular tissues & nervous tissues)	• Lectures • PowerPoint presentation. • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Working in small groups	• Final written exams. • Assignment evaluation by rubric
2.2	Compare between different types of animal tissues (epithelial tissues,	• Lectures • PowerPoint presentation • Scientific movies and	• Quiz 1 • Midterm exam • Quiz2.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	connective tissues, muscular tissues & nervous tissues)	animated life cycles.	• Final written exams.
2.3	Explain and compare between different types of the histological structure of animal organs	• Lectures • Debate and discussion. • Assignments (Co-operative & Individual assignments). • PowerPoint presentation	• Midterm exam • Quiz2. • Final written exams. • Assignment evaluation by rubric
2.4	Discuss and distinguish between different types of the histological structure of animal organs	• Practical labs • Lectures • Debate and discussion	• Practical exams • Final written exams
2.5	Draw sections of both different types of animal tissues and different types of the histological structure of animal organs	• Practical labs • Lectures • Debate and discussion	• Practical exams • Observation Card • Final written exams
3.0	**Competence**		
3.1	Take responsibility for self-learning and professional development	• Assignments	• Assignment evaluation by rubric
3.2	Work effectively in groups	• Working in small group. • Participate in curricular and extracurricular activities.	• 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.	• 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 & Presentations	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	• Histology. Daniel, L. Feeback. Springer-Verlag. Fundamentals of the histology of Domestic Animals. Dr. Alfred Trautman and Dr. Josef Fiebiger.
Essential References Materials	• Integrated principles of Zoology 11th ed. CLEVELAND P. HICKMAN, JR., LARRY S. ROBERTS F& ALLAN LARSON (2001) • علم الحيوان – د.محمود البنهاوي وآخرين, • أساسيات علم الحيوان – د. محمد إسماعيل و آخرين • علم الأنسجة تأليف د. أحمد نعمان نصر . الطبعة الثانية 1995م . الناشر - دار المعارف – 1119 كورنيش النيل - القاهرة . ج.م.ع • أساسيات بيولوجيا الخلية والهستولوجي وعلم الاجنة, منير الجنزوري واخرون, الطبعة الثالثة 2008م , مكتبة الدار العربية للكتاب • بيولوجية الحيوان العملية, أحمد حماد الحسيني و إميل شنودة دميان (1977) . الناشر - دار المعارف
Electronic Materials	a) http://animaldiversity.ummz.umich.edu/site/index.html • b) المكتبة الرقمية الوطنية للعلوم: http://nsdl.org/resources_for/university_faculty/ • • 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	such as computer-based programs/CD, professional standards or regulations and software. Or through RAFD

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 different types of animal tissues and structural animal organs
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- Microtome for preparing sections in animal organs

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
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	

Course Specifications

Course Title:	**Organic Chemistry 1 for Botany**
Course Code:	**42021216**
Program:	**Bachelor of Science in Chemistry**
Department:	**Chemistry**
College:	**Faculty of Science**
Institution:	**Albaha University**

Table of Contents

A. Course Identification

1. Credit hours:	**3 credit hrs. (2T + 1P)**
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 3/ Second year**
4. Pre-requisites for this course (if any)**:**	General Chemistry 1 (31020104)
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	100%
2	**Blended**		
3	**E-learning**		
4	**Correspondence**		
5	**Other**		

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**	10
2	**Assignments**	5
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others**(specify)	5
	Total	20

***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 give a broad overview of aliphatic hydrocarbons, with respect to, nomenclature, synthesis and reactions of alkanes, alkenes, alkynes, alkyl halides, alcohols, phenols and Ethers and epoxides. The course encompasses: introduction to Organic Chemistry, Bonding in organic compounds; isomerism; hybridization, bond cleavage, free radical, nucleophile and electrophile, inductive and resonance effects, Types of reactions in organic chemistry, Stereochemistry chemistry, .

Labs: The labs will provide student with an opportunity to identify and study commonly alkanes, alkenes, alcohols and phenols. Emphasis will be placed on the Precautions and safety rules and the safety in the chemical laboratory. The laboratory will include determination of melting and boiling points of organic compounds, crystallization, distillation, separation of organic compounds.

2. Course Main Objective

The objectives of this course are to:

1- Introduce students to the basic concepts of Organic Chemistry and bonding in organic chemistry;

2- Expose students to the knowledge of classification of organic compounds, properties, structure and types of reactions.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge:**	
1.1	Define the general concepts, terms, common and IUPAC nomenclature of hydrocarbons, most known functional groups, molecular structures and their physical properties.	K1
1.2	Explain the general preparation methods and their chemical reactions.	K1
1.3	Recall the chemical transformation between these compounds	K1
2	**Skills :**	
2.1	Apply his chemical knowledge in solving the chemical problems.	S1
2.2	Use different chemical ways in preparing the organic molecules and investigate their chemical properties.	S1
2.4	Conduct laboratory experiments by using different techniques and effective communication to identify the chemical compounds.	S4
3	**Competence:**	
3.1	Bear self-learning responsibility and decision-making.	C.1
3.3	Write reports and use various techniques to collect and analyze information and presenting it to others.	C.1

C. Course Content

No	List of Topics	Contact Hours

1	Introduction to the course. Bonding in organic compounds; isomerism; hybridization (Sp^3, SP^2, SP); bond cleavage, free radical, nucleophile and electrophile. Inductive and resonance effects. Functional groups of organic families.	6
2	Types of reactions in organic chemistry: addition, substitution and elimination**.** Alkanes: Nomenclature, structure, properties source, preparation and reactions**.**	4
	Exam 1	1
3	Alkenes and cycloalkenes: Nomenclature, structure, properties, preparation and reactions.	2
4	Alkynes: Nomenclature, structure, properties, preparation and reactions**.**	2
5	Alkyl halides: Nomenclature, structure, properties, preparation and reactions.	2
6	SN^1, SN^2, E^1 and E^2 Reactions.	2
	Mid Term Exam	**1**
7	Alcohols: Nomenclature, structure, properties, preparation and reactions.	4
8	Ethers and epoxides: Nomenclature, structure, properties, preparation and reactions**.**	2
	Exam 2	**1**
9	Phenols: nomenclature, properties, preparation and reactions.	3
	Final Exam	--

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 general concepts, terms, common and IUPAC nomenclature of hydrocarbons, most known functional groups, molecular structures and their physical properties.	• Lectures • Debate and discussion • Working in small groups • Individual and group assignments	• Quizzes • Midterm exam. • Assignments evaluation *Final written exams.
1.2	Explain the general preparation methods and their chemical reactions.		
1.3	Recall the chemical transformation between these compounds		
1..			
2.0	**Skills**		
2.1	Apply his chemical knowledge in solving the chemical problems.	• Lectures • Debate and discussion • Working in small groups • Individual and group assignments	• Quizzes • Midterm exam. • Assignments evaluation *Final written exams.
2.2	Use different chemical ways in preparing the organic molecules and investigate their chemical properties.		
2.4	Conduct laboratory experiments by	• Laboratory	*laboratory reports

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	using different techniques and effective communication to identify the chemical compounds.	sessions • Individual and Group work	Final lab exam
3.0	**Competence**		
3.1	Bear self-learning responsibility and decision-making.	• Team work • Small groups and the distribution of roles. • PowerPoint presentation. • Writing reports	Oral discussion Report evaluation
3.3	Write reports and use various techniques to collect and analyze information and presenting it to others.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	5	5
2	Midterm Exam	9	10
3	Quiz2	13	5
4	Assignments and Activities	During Semester	10
5	Final Practical Exam	16	10
6	Lab Reports	During Semester	10
7	Final 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 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	Hornback, Joseph, ***Organic Chemistry: Student Solutions Manual [book],*** NY:Thompson Brook/Cole, 2005, 507pp, ISBN 0534397107
Essential References Materials	Klein, David R. "*Organic Chemistry as a Second Language*, 2nd ed. ISBN 978-0-470-12929-6 {English edition}
Electronic Materials	• https://chemistry.tutorvista.com/organic-chemistry/aliphatic-hydrocarbon.html https://chem.libretexts.org/LibreTexts/Athabasca_University/Chemistry_360%3A_Organic_Chemistry_II/Chapter_17%3A_Alcohols_and_Phenols • https://chem.libretexts.org/Core/Organic_Chemistry/Alkyl_Halides

	• https://www.khanacademy.org/science/organic-chemistry/stereochemistry-topic • http://amrita.olabs.edu.in/?sub=73&brch=8&sim=141&cnt=2 • https://www.youtube.com/watch?v=iOAG93aqpKs • https://www.youtube.com/watch?v=p8F5Duo8g68 • https://www.youtube.com/watch?v=mAZqGzFbGQE • https://www.youtube.com/watch?v=-S3DHdP-gXU
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 glass wares, reagents, melting point apparatus and different equipment for (20-25) students.
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)	• TLC gars. • Glass tubes. • A sensitive balance Chemicals

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching strategies.	Students	Direct Students feedback/ survey
Course contents and Learning resources	Students, Faculty and external reviewer.	Direct
Verifying Standards of Student Achievement	Independent member teaching staff	Direct, check marking and assessment methods. Analyzing results of students.

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:	**Mycology**
Course Code:	**42011216**
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:	Fourth level, Second year
4. Pre-requisites for this course (if any)**:**	
5. Co-requisites for this course (if any)**:**	Practical of Mycology

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 is designed to study the fungi found in different environments such as water, air, and soil, which affect humans, animals and plants and includes an introduction to the general characteristics of fungi and their reproduction and nutrition within different groups. Furthermore, it concerns with study how to identify and classify of fungi as well as examples of life cycles of each group and the definition of medical importance

2. Course Main Objective

The objectives of this course are to:

- acquires a scientific background on the structures, reproduction and nutrition of fungi as well as the basic principles of the taxonomic status of different fungal groups.
- compare the forms, structures, and life cycles of the most important species representing various fungal communities.
- learn the mode of host- fungal infections, and stages occur until the symptoms of fungal disease are developed.
- know the basic information about the fungi economic and applied importance aspects to mankind.

Practicing practical techniques for the isolation, purification, and preservation of fungi and how to identify and collect samples of plants infected with fungi and describe the symptoms of the disease

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	Understanding the term of Mycology and its important, types and roles	K1
1.2	Recognizing the differences between reproductive structures and their biological responses toward environmental change	K2
1.3	Getting insight on the main taxonomic units and the difference between them	K3
2	**Skills :**	
2.1	Differentiate between pathogenic and beneficiary fungi and other closely related organisms	S2
2.2	Distinguishing between fungi based on their life cycle and mycotoxins production	S2
2.3	Identifying the suitable environmental parameters for each fungi to be able to control them preventing their threat	S4
2.4	Identifying and classifying new species in the right taxonomic unit.	S4
3	**Competence:**	
3.1	Personal and professional development. Contribute to the team work and interaction with others in Lab work. Use learning resources such as lecture textbooks, websites, and scientific literatures to make lab reports	C1
3.2	Try using security and safety tools .Lists the different techniques for fungi growing purifications and differentiations	C3

CLOs		Aligned PLOs
3.3	Communicate effectively both in verbal and written form during educational discussions/ meetings on the various subjects of the course.	C3

C. Course Content

No	List of Topics	Contact Hours
1	General introduction to fungi and fungal nutrition and growth	9
2	The Medicinal and economical importance of fungi. The main phyla of fungi and their cellular structure, showing the extent of variation within the different fungal groups.	9
3	The reproductive behavior and structure of different phyla	6
4	Mycotoxins and its harmful effects to living organisms	3
5	Isolatition and growing of fungi under different environmental factors, to understand their influence on fungal activities and food security.	3
6	Different taxonomic systems in Fungi- (Traditional and updated ones)	6
7	Study on representative fungal divisions (Myxomycota Division -Slime molds, Zygomycota, Ascomycota, Basidiomycota, Deuteromycota, and Symbiotic fungi :Mycorrhiza) with suitable examples	9
8	Practical/ Labs	15
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	Understanding the term of Mycology and its important, types and roles	• Lectures • Assignments (Co-operative & Individual assignments). • Debate and discussion..	• Quiz 1 • Midterm exam • Final written exams
1.2	Recognizing the differences between reproductive structures and their biological responses toward environmental change	• Lectures • PowerPoint presentation • Scientific movies and animated life cycles.	• Quiz 1 • Midterm exam • Quiz2. • Final written exams. • Presentation

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		• Debate and discussion. • Assignments (Co-operative & Individual assignments). • Scientific movies and animated life cycles.	evaluation by Rubric • Assinment evaluation by rubric
1.3	Getting insight on the main taxonomic units and the difference between them	• 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	Differentiate between pathogenic and beneficiary fungi and other closely related organisms	• Lectures • PowerPoint presentation • Debate and discussion. • Assignments (Co-operative & Individual assignments). • Working in small groups	• Final written exams. • Assignment evaluation by rubric
2.2	Distinguishing between fungi based on their life cycle and mycotoxins production	• Lectures • PowerPoint presentation	• Quiz 1 • Midterm exam • Quiz2. • Final written exams..
2.3	Identifying the suitable environmental parameters for each fungi to be able to control them preventing their threat	• Lectures • Debate and discussion. • Assignments (Co-operative & Individual assignments). • PowerPoint presentation	• Midterm exam • Quiz2. • Final written exams. • Assignment evaluation by rubric
2.4	Identifying and classifying new species in the right taxonomic unit.	• Practical labs • PowerPoint presentation	• Practical exams

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.0	**Competence**		
3.1	Personal and professional development. Contribute to the team work and interaction with others in Lab work. Use learning resources such as lecture textbooks, websites, and scientific literatures to make lab reports	• Home works • Individual & group research	• Assignment evaluation by rubric
3.2	Try using security and safety tools .Lists the different techniques for fungi growing purifications and differentiations	• 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	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	List Required Textbooks **Alexopoulos, C.J., Mims, C.W., Blackwell, M. (1996) Introductory Mycology, Wiley, New York.**
Essential References Materials	List Essential References Materials (Journals, Reports, etc.) • Michael Carlile, Sarah Watkinson, Gooday Graham (2001) . The Fungi, Academic Press • McLaughlin, D. J., and McLaughlin, E. G. (2001). The Mycota, Vol. VII, "Systematics and Evolution" (D. J. McLaughlin, E. G. McLaughlin, and P. A. Lemke, eds.), Part A, pp. xi–xiv. Springer-Verlag, Berlin List Recommended Textbooks and Reference Material (Journals, Reports, etc.) • Watkinson C. and Gooday G. W. (2001). Published by Academic Press. •
Electronic Materials	List Electronic Materials, Web Sites, Facebook, Twitter, etc. 1. www.springerlink.com 2. www.sciencedirect.com 3. www.pubmed.com 4. http://classes.plantpath.wsu.edu 5. http://www.mycolog.com 6. http://ocid.nacse.org/classroom/fungi/bot461/ 7. http://www.cfr.washington.edu/classes.esrm.451/LECTURES.htm 8.http://mycology.cornell.edu/ 9.http://www.mycology.adelaide.edu.au/ 10.http://en.wikipedia.org/wiki/Mycology 11.http://www.mycology.adelaide.edu.au/Fungal_Jungle/ 12.http://www.mycology.adelaide.edu.au/gallery/photos/ 13.http://www.Drfungus.com
Other Learning Materials	Other learning material such as computer-based programs/CD, professional standards or regulations and software. • CD-ROM containing the animated life cycles. • Movies for life cycles. Microscopic slides for different stages of fungi.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration	1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

Item	Resources
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 fungal life cycles and pathogenic 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- Culture media and autoclave for sterilization.

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
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	

Course Specifications

Course Title:	**General Entomology**
Course Code:	**42011218**
Program:	**Bachelor of Science in Biology**
Department:	**Biology**
College:	**Science and Arts in Qilwa**
Institution:	**Al baha University**

Table of Contents

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: **2nd Year / Level 4**
4. Pre-requisites for this course (if any)**:** **Invertebrates 42011213**
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**		
3	**E-learning**		5%
4	**Correspondence**		
5	**Other**		25%

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**	5
2	**Assignments**	2
3	**Library**	5
4	**Projects/Research Essays/Theses**	2
5	**Others** (specify)	
	Total	14

* 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

Entomology is the study of insects. Insects are involved with virtually every part of our lives; they are pests that eat our food, our houses, our animals, and are vectors that spread sickness and disease. But insects aren't all bad! Many insects are beneficial pollinators, decomposers of dead materials, and useful in the biocontrol of unwanted pests. Entomologists study insects to help us manage pests, or learn how to better use them to our advantage. The course "general entomology" is designed for the students to understand insects and the human – insect relationship concepts. the basic morphological and anatomical characteristic of insects including the integument and its components, the different tegmata of insect body and their appendages, the internal anatomy, the history of insect taxonomy and the bases of modern taxonomy

2. Course Main Objective

After completing this course student should be able to:

• Understand the principles of the human – insect relationship.

• Demonstrate the link the basic morphological characteristic of insects including the integument and its components, the different tegmata of insect body and their appendages.

• Describe the structure and function of various organs.

• Demonstrate the the internal anatomy of insects.

• Understanding the history of insect taxonomy and the bases of modern taxonomy.

• List all the insects' orders. • Recognize some important insect-related diseases.

• Recognize and design models of insect life cycle.

• Compare and assess the concepts and principles behind scientific theories regarding the significance of the specific structure in the insect body.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	**Identify the numerous levels of organization in the insect body**	K1
1.2	**Illustrate the in-depth knowledge of insect morphology, anatomy.**	K3
1.3	**Illustrate the working knowledge of the terminology and nomenclature of insect body plan. & Identify the bases of modern taxonomy.**	K3
2	**Skills :**	
2.1	**Developing oral presentations**	S1
2.2	**Communicating personal ideas and thoughts**	S2
2.3	**Work independently and as part of a team to finish some assignments.**	S4
3	**Competence:**	
3.1	**Use information and communication technology**	C1
3.2	**Use IT and communication technology in gathering and interpreting information and ideas**	C1
3.3	**Use the internet as a means of communication and a source of information**	C3

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction To Entomology and its study importance**	3
2	* **Position arthropods and Insects in animal Kingdom** *Introduction of taxonomy. - General Characteristics of Phylum Arthropoda - General Characteristics of insects	3
3	**The different tagmata of insect body** *** The Head** -The head capsule (Cranium) structure. - Segmentation of the head - The Tentorium * The head and mouth parts structure (Labrum – mandibles – maxillae – labium - The types of mouth-parts - The mouth-parts modification * The antennae - The antennal structure.- The different types of antennae	6
4	***The insect thorax** - The structure of the thoracic segments (prothorax – mesothorax – metathorax). - The thoracic sclerites (Tergites – pleurites – sternites). * **The thoracic appendages.** **- Types of legs and wings.** - The structure of leg (Coxa – trochanter – femur – tibia – tarsus – pretarsus**).** - The leg modification and its types. *** The wing structure.** - The wing venation. - The wing regions. - The basal articulation of wing. - The wing – coupling apparatus - The typical insect thoracic wing bearing – segments.	6
5	***The insect Abdomen** - The structure of abdominal segments**.** - The abdominal endoskeleton. *** The abdominal appendages.** - Non reproductive appendages (anal cerci- appendages of apterygota – appendages of immature pterygota insects). - The reproductive appendages. - The structure and types of ovipositor. - The sting apparatus. - The structure of male genitalia.	6
6	***The internal anatomy** ***The digestive system and nutrition in insects** **-The structure, histology, and function of fore gut (**the preoral cavity –pharynx – esophagus- proventriculus and the cardiac valves). - The structure, histology, and function of mid gut. **- The peritrophic membrane. - Gastric caeca.** **- The structure, histology, and function of hind guts (pyloric valves – intestine – rectum an rectal glands- anal glands).** **- The salivary gland structure, types, number, and function.** **- The nutrition and digestion.**	3

7	***The circulatory system** -The structure of insect open circulatory system (dorsal vessels- diaphragms – sinuses – and pulsatory organs). - The heamolymph. - The type of heamocytes. - The heamolymph circulation. ***The respiratory system** **-- The structure of respiratory system**	3
8	**- The reproductive system.** - The male reproductive system (testes – vas deferens- ejaculatory ducts and the male accessory glands). - The female reproductive system structure. - The type of reproduction. ***The ecdysis and metamorphosis.**	6
9	***The nervous system of insects** -Types of neurons - Central Nervous System - Visceral nervous system -Peripheral Nervous System	3
10	***The medical and economic importance of insects** The human-insect relationship -The beneficial relationship -The neutral relationship -The harmful relationship	3
	General revision	3
Total		45

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	**Identify the numerous levels of organization in the insect body**	**In-class lecturing where the previous knowledge is linked to the current and future topics.** **•Homework assignments.** **•Discussions (connecting what they learn in the class and applying this information in laboratory).** **•Handout of of lecture notes for each topic**	Homework and quizzes. **•Midterm and final written exams (theoretical and practical).** **•Evaluation of reports.** •Oral presentation. •Course work reports.
1.2	**Illustrate the in-depth knowledge of insect morphology, anatomy.**		
1.3	**Illustrate the working knowledge of the terminology and nomenclature of insect body plan.** **& Identify the bases of modern taxonomy.**		
2.0	**Skills**		
2.1	**Developing oral presentations**	**Application of essential scientific techniques through lectures, classes and essays.** **• Small group discussion.** **• Ask the students to make small search project during**	**•Course work reports.** **•Evaluation of the topics prepared by students according to the content, arrangement, and covering of the topic.**
2.2	**Communicating personal ideas and thoughts**		
2.3	**Work independently and as part of a team to finish some assignments.**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		the semester. • Making connections between different topics across the course.	•Midterm and final exams. Checking the homework assignment
3.0	**Competence**		
3.1	Use information and communication technology	Oral presentations. • Internet search assignments and essays. • Incorporating the use and utilization of computer in the course requirements. • Students will be asked for delivering a summary regarding certain topics related to the course.	•Evaluation of student essays and assignments. • Evaluating the laboratory written reports. • Marks given to for good reports and presentations • Evaluating during the discussion in lecture and reports. Part of the grad is put for student's written participation
3.2	Use IT and communication technology in gathering and interpreting information and ideas		
3.3	Use the internet as a means of communication and a source of information		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	1st Periodic exam.	5	5%
2	Midterm exam.	5	10%
3	2nd Periodic exam	3	5%
4	**Home works, search or presentation**	During Semester	10%
5	Practical reports	15	10%
6	**Final Exam "Practical**	15	10%
7	Final theoretical exam.	16	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	• Entomology: At a Glance Volume 1 Basic & Applied Fundamentals, R.C. Saxena (Author) 2013 • Applied Entomology: ICAR JRF ARS SAUs Entrance Exams UPSC Civil Services Prelims 2nd edn Paperback – 2010 by D S Reddy (Author) • General Entomology .2007 by Dr. Mohammed Tawfiq, Dar Al-Zahra- Riyadh

	• 4. Installation and commissioning insect classification 1995 - d. Nasrallah George Rizk • Academic Library • Agricultural insect's virtual shape and internal autopsy --1 997 m - Ali Badawi and Ali • Asheispain - King Saud University • The basics of entomology -2001 m - Richard Alovja translation Ahmed Salam - Academic • Library علم الحشرات العام (2009) ياسر عفيفي ، دار الميسرة للنشر والطباعةتز عمان
Essential References Materials	• Medical and Veterinary Entomology • Annual Review of Entomology • Bulletin of Entomological Research • Journal of Insect Behavior • **Journal of Visualized Experiments** Srored product insect research
Electronic Materials	• موقع المكتبة الرقميةSDL تويتر saudedu@ • Science direct • Entomological Society of Americal @EntocAmerica Google scholar
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**Classrooms, laboratories**
Technology Resources (AV, data show, Smart Board, software, etc.)	**Data show**
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Dissecting apparatus , Microscopes , Dissecting Microscopes , Slides , Chemicals , Nets

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Questionaries'	Students	
Periodic revision	Teachers (Staff)	
External revision	External staff (committee)	

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	