جامعة أم القرى

كلية العلوم التطبيقية

الماجستير في علم الحيوان

4. Learning and Teaching

4/1 Learning Outcomes and Graduate Specifications

4/1/2 Curriculum Study Plan Table

Year	Course Code	Course Title	Required or Elective	* Pre-Requisite Courses	Credit Hours	College or Department
1st Year (Semester 1) 2 Compulsory courses (8 credit hours) + 1 Subject specific Elective (4 credit hours Semester total = 12 credit hours	4013611-4	Advanced Cytology	R	N/A	4	
	4013612-4	Advanced Molecular Biology	R	N/A	4	
	4013621-4	Advanced Histology	E	N/A	4	
	4013622-4	Advanced Animal Physiology	E	N/A	4	
	4013623-4	Advanced Entomology	E	N/A	4	
	4013624-4	Advanced Parasitology	E	N/A	4	
	4013625-4	Advanced Endocrinology	E	N/A	4	
	4013626-4	Advanced Animal Ecology	E	N/A	4	
	4013627-4	Advanced Genetic	E	N/A	4	
	4013628-4	Advanced Vertebrate Zoology	E	N/A	4	
	4013629-4	Advanced Invertebrate Zoology	E	N/A	4	
	4013630-4	Advanced Animal Embryology	E	N/A	4	
1st Year (Semester 2) 2 Compulsory courses (4 credit hours) + 2 Subject specific Electives (8 credit hours) Semester total = 12 credit hours	4013641-2	Advanced Research Applications	R	N/A	2	
	4013642-2	Skills & Ethics Research	R	N/A	2	
	4013651-4	Cell and Tissue Biology	E	N/A	4	
	4013652-4	Advanced Histochemistry Technology	E	N/A	4	
	4013653-4	Histopathology	E	N/A	4	
	4013654-4	Toxicology	E	N/A	4	
	4013656-4	Organs and Tissue Culture	E	N/A	4	
	4013657-4	Advanced Embryology and Teratology	E	N/A	4	
	4013658-4	Biochemistry of Nutrition	E	N/A	4	
	4013659-4	Blood physiology/ Blood biochemistry	E	N/A	4	
	4013660-4	Immunology	E	N/A	4	
	4013661-4	Reproduction Physiology	E	N/A	4	

	4013662-4	Invertebrates Conservation and Management	E	N/A	4	
	4013663-4	Aquatic and Economic Invertebrates	E	N/A	4	
	4013664-4	Culturing of Economic Aquatic Invertebrates	E	N/A	4	
	4013665-4	Animal Ecology and Pollution	E	N/A	4	
	4013666-4	Marine Ecology and Oceanography	E	N/A	4	
	4013667-4	Environmental Science and Water Management	E	N/A	4	
	4013668-4	Insect Ecology and Behavior	E	N/A	4	
	4013669-4	Medical and Veterinary Entomology	E	N/A	4	
	4013670-4	Forensic Entomology	E	N/A	4	
	4013671-4	Advanced Insect Physiology	E	N/A	4	
	4013672-4	Alternative methods of pests Control	E	N/A	4	
	4013673-4	DNA Transcription and Gene regulation	E	N/A	4	
	4013674-4	Genetics and Genomics	E	N/A	4	
	4013675-4	Mutagenesis and over expression of enzymes	E	N/A	4	
	4013676-4	Recumbinent DNA Technology	E	N/A	4	
	4013677-4	Parasites Environment	E	N/A	4	
	4013678-4	Immune-parasitology	E	N/A	4	
	4013679-4	Parasites molecular biology	E	N/A	4	
	4013681-4	Parasites physiology	E	N/A	4	
	4013682-4	Neuroscience	E	N/A	4	
	4013683-4	Developmental of Neurobiology	E	N/A	4	
	4013684-4	Neural stem cells	E	N/A	4	
	4013685-4	Biology of stem cells	E	N/A	4	
	4013686-4	Vertebrates Biodiversity	E	N/A	4	
2nd Year (first and second semesters)	4013699-16 / Research Project leading to MSc thesis / Dissertation					

4/1/4. Course Specification:

4/1/5 4/1/5/1 Matrix of Learning Outcomes, Teaching Strategies and Assessment Methods

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Cell Biology
4013611-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Cell Biology (4013611-4)**
2. Credit hours: **4 Cr.Hs**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **M.Sc. Zoology**
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	at percentage? **90%**
b. blended (traditional and online)		hat percentage?
c. e-learning		t percentage?
d. correspondence		at percentage?
f. other		t percentage?

Comments:

- Brainstorming and discussing structure and function at the molecular and cellular levels
- Working in groups

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding to the concept of the cell, cell growth and division, cell synchronization, cell cycle regulation, cell chromatin structure and function, the structure of the chromosome, nucleic acids, DNA replication and repair.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This graduate course is concerned primarily with structure and function of eukaryotic cells. Lectures are devoted to studying the molecular functions of the different parts of the cell, cell-to cell organization, and current topics of cell biology .The course structure is designed to provide an understanding of the cell and describe the location and function of cellular membranes and cytoplasmic organelles ,cell membrane, cytoplasm, lysosome, mitochondrion, endoplasmic reticulum, Golgi body, ribosome, chromosome, centriole, nucleus, nuclear membrane, nucleolus in addition to vesicular transferring endocytosis ,cell-to-cell junction ,Inter- and Intra-cellular signaling and cell cycle.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to the cell theory, and examples for each component	**1**	**4**
Membrane structure and trans-membrane transport	**2**	**8**
Structure and function of the different cell organelles	**3**	**12**
Vesicular transferring and endocytosis	**1**	**4**
Intracellular organization and movement	**1**	**4**
Cell-to-cell junction and interaction	**2**	**8**
Inter- and Intra-cellular signaling	**2**	**8**
Cell division	**1**	**4**
Cell cycle	**1**	**4**
Molecular basis of cancer Stem cells	**2**	**8**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Understand the cell theory, giving examples for each component
- Describe the cell and describe the location and function of cellular membranes and cytoplasmic organelles.
- Distinguish between active and passive transport; explain different processes involved in each
- Compare and contrast the cellular structures of plant and animal cells
- Demonstrate membrane and discuss membrane functions and properties (i.e. permeability)
- Be able to examine different shapes of cells and discuss the relationship between shape and function
- Describe the different stages of cell division
- Understand stages and duration of the cell cycle
- Identify cell-to-cell junction and interaction
- Understand the molecular basis of cancer stem cells

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**10%**
2	**Short essay**		**15%**
3	**Short written exam**		**15%**
4	**Final Examination**		**60%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 6 Hr's per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- Verma P.S. and Agarwal V.K. (1999) Textbook of Cytology
- S.Chand & Company LTD.
- Edmund S. Cibas, MD and Barbara S. Ducatman, MD , Cytology, 4th Edition
- Copyright © 2014 Elsevier Canada
- Jump up , "Cytology". Collection development manual of the National Library of Medicine (4th ed.). Bethesda, MD: National Library of Medicine, National Institutes of Health, U.S. Department of Health and Human Services. 2004.
- Christine, Zuchora-Walske (2015). Key Discoveries in Life Science. minneapolis: Lerner Publications. p. 9. ISBN 9781467762502.

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

- Journal of Cytology
- Journal of Cell Biology
- Biomednit.com
- Journal of biological sciences
- CytoJournal
- Journal of Cytology and Histology

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show

(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Cytology
4013611-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Cytology (4013611-4)**		
2. Credit hours: **4 Cr.Hs**		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **M.Sc. Zoology**		
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**		
5. Level/year at which this course is offered		
6. Pre-requisites for this course (if any)		
7. Co-requisites for this course (if any)		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. traditional classroom	✓	at percentage? **90%**
b. blended (traditional and online)		hat percentage?
c. e-learning		t percentage?
d. correspondence		at percentage?
f. other		t percentage?

Comments:

- Brainstorming and discussing structure and function at the molecular and cellular levels
- Working in groups

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding to the concept of the cell, cell growth and division, cell synchronization, cell cycle regulation, cell chromatin structure and function, the structure of the chromosome, nucleic acids, DNA replication and repair.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This graduate course is concerned primarily with structure and function of eukaryotic cells. Lectures are devoted to studying the molecular functions of the different parts of the cell, cell-to cell organization, and current topics of cell biology .The course structure is designed to provide an understanding of the cell and describe the location and function of cellular membranes and cytoplasmic organelles ,cell membrane, cytoplasm, lysosome, mitochondrion, endoplasmic reticulum, Golgi body, ribosome, chromosome, centriole, nucleus, nuclear membrane, nucleolus in addition to vesicular transferring endocytosis ,cell-to-cell junction ,Inter- and Intra-cellular signaling and cell cycle.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to the cell theory, and examples for each component	**1**	**4**
Membrane structure and trans-membrane transport	**2**	**8**
Structure and function of the different cell organelles	**3**	**12**
Vesicular transferring and endocytosis	**1**	**4**
Intracellular organization and movement	**1**	**4**
Cell-to-cell junction and interaction	**2**	**8**
Inter- and Intra-cellular signaling	**2**	**8**
Cell division	**1**	**4**
Cell cycle	**1**	**4**
Molecular basis of cancer Stem cells	**2**	**8**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

- **On completion of this course students will have or be able to:**
- **Understand the cell theory, giving examples for each component**
- **Describe the cell and describe the location and function of cellular membranes and cytoplasmic organelles.**
- **Distinguish between active and passive transport; explain different processes involved in each**
- **Compare and contrast the cellular structures of plant and animal cells**
- **Demonstrate membrane and discuss membrane functions and properties (i.e. permeability)**
- **Be able to examine different shapes of cells and discuss the relationship between shape and function**
- **Describe the different stages of cell division**
- **Understand stages and duration of the cell cycle**
- **Identify cell-to-cell junction and interaction**
- **Understand the molecular basis of cancer stem cells**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**10%**
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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)

- **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.**
- **Office hours: 6 Hr's per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

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2. List Required Textbooks

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- Edmund S. Cibas, MD and Barbara S. Ducatman, MD , Cytology, 4th Edition. Copyright © 2014 Elsevier Canada
- Jump up , "Cytology". Collection development manual of the National Library of Medicine (4th ed.). Bethesda, MD: National Library of Medicine, National Institutes of Health, U.S. Department of Health and Human Services. 2004.
- Christine, Zuchora-Walske (2015). Key Discoveries in Life Science. minneapolis: Lerner Publications. p. 9. ISBN 9781467762502.

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

- Journal of Cytology
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- Journal of Cytology and Histology

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show

(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

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3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Vertebrate Zoology
4013628-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Vertebrate Zoology (4013628-4)**
2. Credit hours: **4 Cr.Hs**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **M.Sc. Zoology**
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100%**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

- Brainstorming and discussing structure and function at the molecular and cellular levels
- Working in groups

B Objectives

1. What is the main purpose for this course?

The main objective of the course is to provide an understanding of anatomical and morphological features of the different classes of vertebrate animals .

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

The course gives a clear idea about the evolution of anatomical and organic features of the different classes of vertebrate animals . General characteristics in addition to anatomical features of different body systems and organs in chordates ,fishes ,amphibians ,reptiles ,birds and mammals are the matter of study in this course . The course also focuses or contrast on understanding the extent of development in the

organs and body systems by transition from sect to sect.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
An introduction to the classification of vertebrate animals and genera their general characteristics.	**1**	**4**
General characteristics of chordates, and its divisions with an explanation of the digestive and, in excretory systems of amphioxus. Ascidia and Planoglossus as models for urochordates and hemichordates. body organs .	**3**	**12**
Properties under the tribe vertebrates, a division of vertebrates - the details of body organs of lamprey.	**1**	**4**
Properties of bony and cartilaginous fishes, the body systems of dog fish. Characteristics of bony fishes, external features and dissection of tilapia.	**3**	**12**
Amphibians and their characteristics, and its exter-nal features and dissection of frog .	**1**	**4**
General characteristics of reptiles, lizard body organs dissected in detail.	**2**	**8**
General characteristics of birds, external form, the digestive and the respiratory systems.	**1**	**4**
The circulatory and urino-genital systems of pigeon	**1**	**4**
Characteristics of mammals, mammals initial purse, the digestive system of rabbit .The respiratory system, circulatory system, urino-genital system in male and female rabbits.	**3**	**12**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the importance of recognizing taxonomic status of the living organism to distinguish it and facilitate their study.**
- **Distinguish the general and taxonomical characteristics of vertebrate animals and how to recognize genus and species of some animals.**
- **Describe the morphological and anatomical characteristics of chordates through studying of body systems of amphioxus ,acidia and planoglussus**
- **Understand the characteristics of agnatha (jawless fish) and its classification , using the study of lamprey as a model**
- **Detect the external details morphological and anatomical characteristics of cartilaginous fishes, using the dog fish as model.**
- **Multiplicity the general characteristics of bony fishes using the dissection of tilapia as a model.**
- **Describe the nature and characteristics of amphibians and its taxonomy , with the study of the external and anatomical characteristics the frog.**
- **Understand the characteristics of a reptiles, and learn about the classification ,morphological and anatomical features of body t organs of lizard anatomy.**

- **Distinguish the general characteristics of birds, and their taxonomic status, and study the organs and body organs of home pigeons**
- **Distinguish the characteristics of mammals, and, with a detailed explanation of body organs of rabbit as a model for this taxon.**
- **Identify the extent of development and complexity in organic and functional of activities in the various body organs as we move from one animal class to another**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**10%**
2	**Short essay**		**15%**
3	**Short written exam**		**15%**
4	**Final Examination**		**60%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 6 Hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

3. List Required Textbooks

- **Abdel Raouf Gamal and Hassan Shehata Chordata, first edition, Publishing House, Riyadh, 2003**
- **Mohamed Ismail Mohamed and others, Fundamentals of Zoology, , First Edition, Dar Al-Arab Thought, Cairo, 2002**
- **Mohammad Hassan Hamoud , Biology of vertebrates , first Arabic edition, to be eligible for publication and distribution, Jordan, in 2005**
- **Wilson, D. E., and F. R. Cole. 2000. Common Names of Mammals of the World. Smithsonian Institution Press, Washington, D.C.**
- **Ridgely, R. S., and G. Tudor. 1994. The birds of South America. Volume 2. University of Texas Press, Austin.**
- **Stebbins, R. C. 2003. A field guide to western reptiles and amphibians. Third edition. Houghton Mifflin Company, Boston.**
- **Stebbins, R. C. 2003. A field guide to western reptiles and amphibians. Third edition. Houghton Mifflin Company, Boston.**
- **Page, L. M., and B. M. Burr. 1991. A field guide to freshwater fishes: North America north of Mexico. Houghton Mifflin, NY.1 - Mahmoud Albanhawi, and others (2006): Text book of Zoology, tenth edition, Dar - Almaref, Egypt**

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
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5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Research Skills and Biostatistics
4013642-2

Course Specifications

Institution: **Umm Al-Qura University**	Date
College/Department: **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

1. Course title and code: **Research Skills and Biostatistics (4013642-2)**
2. Credit hours: **2 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Shady El-Shehawy (smshehawy@uqu.edu.sa)**
5. Level/year at which this course is offered: **First year / Second semester**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The objective of this course is to introduce research skills, working ethics and statistical methods to the student. Working exposure on various techniques and identifying research problem and presentation on the problem will be provided. Activities like seminar presentation, poster presentation, research topic presentation, Review of literature on allotted topic.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) **This course requires the use of IT, particularly statistical software packages like SPSS**

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

This course aims to help studying identifying and developing the basic skills required for research, and handling biological research data for statistical analysis. The topics ranged from identifying the appropriate research topic, up to choosing the appropriate practical methodology to reach the objectives of the research. Providing the students with tips and strategies for searching the appropriate reading materials as well as choosing the appropriate statistical tests for presenting their research data in a correct and attractive manner.

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction to research methodology and skills development	**2**	**4**
Techniques: Principle and applications	**2**	**4**
Presentation of Research work by poster presentation	**2**	**4**
Biostatistics: Statistical tests, the choice of appropriate tests; handling data; interpretation of statistical analysis	**7**	**14**
Seminar lectures on selected topic; Current trends in microbiology **Agricultural microbiology** **Environmental** **Medical Microbiology** **Molecular microbiology** **Microbial technology**	**3**	**6**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**12 (6 weeks)**		**14 (7 weeks)**		**6 (3 weeks)**	**32**
Credit	**2**		**2**		**2**	**2**

3. Additional private study/learning hours expected for students per week.	

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the importance of various basic techniques in developing research data.**
- **To explain the concept and, protocol, advantages and limitation of various research techniques.**
- **An introduction to the research methodology.**
- **Biostatistics: various statistical methods, how to be used and its interpretation**
- **Identify and differentiate types of research techniques and tools used.**
- **Present information clearly in the form of verbal reports/ seminar or poster presentation.**
- **Communicate complex ideas and arguments in a clear, concise and effective manner.**
- **Work effectively as an individual or part of a team**
- **Use conventional and electronic resources to collect, select and organize complex scientific information**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management**
- **Critically evaluate their personal performance both as an individual and within a team**

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Statistical assignment tasks (10 assignments)**	**7 – 13**	**30**
2	**Draft preparation of research plan**	**4 – 6**	**10**
3	**Draft preparation of research proposal**	**4 – 6**	**20**
4	**Preparation of Power Point presentation for research seminar**	**14**	**10**
5	**Presentation skills (seminar) (two seminars)**	**15 – 16**	**30**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **(1)- Badke W. (2014) Research Strategy: Finding Your Way Through the Information Fog 5th edition. iUniverse Publishing. (ISBN: 1491722339).** **(2)- Booth W. C., Colomb G. G., Williams J. M., Bizup J., FitzGerald W. T. (2016) The Craft of Research 4th edition. University of Chicago Press. (ISBN: 022623973X).** **(3)- Gilbert F., McGregor P., Barnard C. (2011) Asking Questions in Biology: A Guide to Hypothesis Testing, Experimental Design and Presentation in Practical Work and Research Projects 4th edition. Pearson Education. (ISBN: 0273734687).** **(4)- Ennos R. (2012) Statistical and Data Handling Skills in Biology 3rd edition. Trans-Atlantic Publication Inc. (ISBN: 0273729497)** **(5)- Fowler J., Cohen L., Jarvis P. (1998) Practical Statistics for Field Biology. John Wiley & Sons. (ISBN: 0471982962).**
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) **(1)- Availability of statistical software packages for students**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____
Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Toxicology
4013654-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Toxicology (4013654-4)**
2. Credit hours: **4 Cr.Hs**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **M.Sc. Zoology**
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100%**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

- Brainstorming and discussing structure and function at the molecular and cellular levels
- Working in groups

B Objectives

1. What is the main purpose for this course?

- Understanding the basic principles of and the different disciplines of toxicolog.Gaining knowledge regarding the supportive measures, therapeutic interventions, specific antidotes as general guidelines of treatment modalities.
- Understanding the mechanism of toxicity, toxicokinetics, clinical presentation,diagnosis and medications indicated and contraindicated in the treatment of toxicity of common drug and chemical groups.
- Understanding the serious consequences of exposure to therapeutic drugs, environmental and occupational chemicals and gaining knowledge regardin chemotherapy, forensic chemistry and first aid measures.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Examines basic concepts of toxicology as they apply to environmental toxicology. Discusses distribution, cellular penetration, metabolic conversion, and elimination of toxic agents, as well as the fundamental laws governing the interaction of foreign chemicals with biological systems. Focuses on the application of these concepts to the understanding and prevention of mortality and morbidity resulting from environmental exposure to toxic substances through a case study format.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction and different fields of toxicology and antidotal therapy	**1**	**4**
CNS stimulants	**2**	**8**
Mercury poisoning	**2**	**8**
Lead poisoning	**1**	**4**
Cyanide poisoning and methaemoglobineamia	**2**	**8**
Carbon monoxide poisoning	**1**	**4**
Digoxin toxicity	**2**	**8**
Corrosives	**1**	**4**
Salicylate poisoning	**2**	**8**
Cocaine and herion	**2**	**8**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week.	

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Describe the chemical properties and the biological processes which modulate the toxicokinetics of chemical agents of public health importance.**
- **Explain the significance of biotransformation reactions as a determinant of the toxicokinetic and toxicodynamic activities of chemicals.**
- **Describe molecular, cellular and pathophysiological responses resulting from exposure to chemical agents relevant to human health.**
- **Identify underlying susceptibility factors which contribute to the ability of chemicals to elicit bio-effects which contribute to human disease.**
- **Explain the science underlying testing for the ability of chemicals to produce adverse human health effects.**
- **Put into perspective the role of toxicology in the risk assessment process.**
- **Assess drug interactions and adverse drug reactions.**
- **Analyze, evaluate and interpret clinical cases of toxicity.**
- **Differentiate between different toxic agents regarding**
- **their symptoms, as well as their main lines of toxicity treatment.**
- **Criticize different methods for the management of poisoning in individual cases of toxicity.**
- **Apply the knowledge of patient stabilization and antidotes in management of toxicity cases.**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**10%**
2	**Short essay**		**15%**
3	**Short written exam**		**15%**
4	**Final Examination**		**60%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 6 Hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

List Required Textbooks **Ernest Hodgson (2015), A Textbook of Modern Toxicology,4th ed. ISBN-10: 047046206X** **ISBN-13: 978047046206** **Peter Viccellio, Lippincott Williams & Wilkins;2nd edition (1998). Emergency Toxicology. ISBN-10: 0316902373** **ISBN-13: 978-031690237** **Leikin, Jerrold B. LexiComp,U.S. (1997) ,Poisoning & Toxicology Compendium Publisher: Lexi-Comp, Inc** **ISBN-10: 0916589617 ISBN-13: 978-0916589615**
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: • **Clinical Toxicology** • **http://toxnet.nlm.nih.gov**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Embryology and Teratology
4013657-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Embryology and Teratology 4013657-4**
2. Credit hours: **4 Cr.Hs**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **M.Sc. Zoology**
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100%
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

- **Brainstorming and discussing structure and function at the molecular and cellular levels**
- **Working in groups**

B Objectives

1. What is the main purpose for this course? **This graduate course is designed to describe the mechanisms and clinical relevance of human embryology and teratology .**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The first part of the course will focus on developmental mechanisms and early development. It will also focus on development of organ systems in the human body. The course is supplemented with additional educational material and assignment, which is appropriate for students enrolled in the graduate certificate. Online teaching and animations could provide detailed understanding on clinical correlations of human embryological development. The second part of the course will focus on the teratogenic agents in man and their mechanisms of action. Special emphasis will be given to teratogenic drugs including drugs of abuse and chemicals; to the effects of ionizing**

irradiation; of hypoxia and to nutritional deficiencies and of maternal infections in pregnancy. We will also discuss the possible effects of some maternal diseases like diabetes, and autoimmune diseases as well as of paternal factors

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
General introduction: The discipline of Embryology is situated in broader historical and scientific perspective. Also some important terms, definitions and basic principles of both the classical embryology and developmental biology are explained and illustrated.	**2**	**8**
Preparation for new life: The different steps from the production of the sperm and egg (gametogenesis) in the parental animals over the processes of fertilization until the formation of the zygote.	**2**	**8**
Early embryogenesis: the newly formed concept passes through the different cleavage stages and develops into a blastocyst. Subsequently, gastrulation and neurulation take place and the primitive embryo is shaped and secluded from its surrounding membranes	**2**	**8**
Fetal membranes and placenta: after a brief overview of the general development and function of the fetal membranes and placenta in human.	**2**	**8**
Congenital malformations: the different possible outcomes of anomalous development are discussed, with a special focus on the dysmorphogenesis. Subsequently, a short overview is given of the different natures of teratological agents. Specific examples of congenital malformations are integrated and associated with specific aberrations of normal development.	**3**	**12**
Organogenesis: The development of the different tissues, organs and body regions is systematically discussed locomotory system -body cavities -the head and neck -digestive system- respiratory system- urogenital system- cardiovascular system - lymphoid system - nervous system - the eye - the ear - the endocrine system - the integument	**3**	**12**
The fetus: focuses on the recognition of the typical developmental characteristics of the fetus that can be applied for the estimation the fetal age.	**2**	**8**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Describe early human development**
- **Illustrate developmental control mechanisms**
- **Describe the development of selected organ systems in the human body**
- **Understand the basis of possible environmental effects on the developing human embryo and fetus.**
- **Define the main human teratogenic drugs**
- **Define the teratogenicity of some maternal infections in pregnancy and how they can be diagnosed**
- **Define the pregnancy stages when embryos and fetuses are most susceptible to the action of teratogens**
- **Counsel pregnant women following exposure to non teratogenic agents and have some basic knowledge on the possible effects of teratogenic drugs .**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**10%**
2	**Short essay**		**15%**
3	**Short written exam**		**15%**
4	**Final Examination**		**60%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 6 Hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

List Required Textbooks

Ronan O'Rahilli &Fabula Muller,(2015) Human Embriology and Teratology,3rd Ed. ISBN-13: 978-0471382256 ISBN-10: 0471382256
Ernest Hodgson (2004), Teratogenesis ,Published Online
Moore, K.L., Persaud, T.V.N. & Torchia, M.G. (2015). The Developing Human: Clinically Oriented Embryology(10th ed.)
Philadelphia: Saunders. UNSW Library | NLM ID: 101649439

2. List Essential References Materials (Journals, Reports, etc.)
High Impact Journals:

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)
(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
(1)- Questionnaires / students opinion survey
(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
1)- Revision of student answer papers / assignments by another staff member.
(2)- Analysis the grades of students.

3 Processes for Improvement of Teaching
(1)- Preparing the course as PPT.

(2)- Using scientific movies. **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Vertebrates Biodiversity
4013686-4

Course Specifications

Institution **Umm Al-Qura University**
College/Department **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Vertebrates Biodiversity (4013686-4)**			
2. Credit hours **4 credit hours**			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**			
4. Name of faculty member responsible for the course **Dr. Amal A. Selim (aaselim@uqu.edu.sa)**			
5. Level/year at which this course is offered: **Level-II / 1st Year**			
6. Pre-requisites for this course (if any) **N/A**			
7. Co-requisites for this course (if any) **N/A**			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	95 %
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other	✓	What percentage?	5 %

Comments:
Repeated visits to the natural reserves are recommended

B Objectives

1. What is the main purpose for this course?

The main aim of this course is to provide fundamental and advanced understanding on the patterns of diversification and distribution of vertebrate, including the roles of morphology, ecology and behavior in shaping both the history and contemporary biodiversity and the ability of animals to respond to changes at the level of landscapes, regions and continents. Combines the biology of vertebrates with the emerging science of biodiversity and conservation.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Comparative biology of vertebrates, emphasizing morphology, evolution, ecology and behavior. 4 credits. This course explores the diversity, evolution, adaptations, and ecology of vertebrates. The lectures and labs are coordinated as much as possible so that laboratory work expands upon information provided through lecture and reinforces an understanding of diversity and adaptation. Labs may include field trips.

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction. What are Vertebrates?	**1**	**4**
Vertebrate diversity	**1**	**4**
Fishes biodiversity	**2**	**8**
Fishes conservation	**1**	**4**
Amphibians biodiversity	**1**	**4**
Amphibians conservation	**1**	**4**
Reptiles biodiversity	**1**	**4**
Reptiles conservation	**1**	**4**
Birds biodiversity	**2**	**8**
Birds conservation	**1**	**4**
Mammals biodiversity & conservation	**2**	**8**
Mammals conservation	**1**	**4**
Review	**1**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

- **On completion of this course students will be able to :**
- **Explain how diverse vertebrate species have evolved in response to biotic and abiotic challenges, and how these various selective pressures have led to various vertebrate adaptations, including morphological, physiological, ecological, and behavioral traits**
- **Understand major events in the evolutionary history of vertebrates, such as the origin of land vertebrates, and be able to place these events in the appropriate geological context.**
- **Be able to classify vertebrate species to the appropriate phylogenetic group using correct scientific names, and describe the relationships between the major groups of vertebrates, and the synapomorphies that define each group.**
- **Be able to identify major anatomical structures in diverse vertebrate species, including cartilaginous and bony fishes, amphibians, mammals, reptiles, and birds.**
- **Be able to look at a living or fossil vertebrate and be able to make logical predictions about its way of life.**
- **Understand how differences in life history have arisen in various vertebrate groups, and how these differences affect conservation concerns in each group**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**40%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**30%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised. **Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **Course Resources:** • **Textbook Vertebrate Life, 9e by Pough, Janis, and Heiser. Pearson (publisher), 2013.** • **Textbook publisher web site: http://www.mypearsonstore.com/bookstore/vertebrate-life- 9780321773364**
2. List Essential References Materials (Journals, Reports, etc.) **(1)- Vertebrate Life (2012). F. Harvey Pough 9th ed. Benjamin Cummings.** **(2)- Essentials of Conservation Biology (2014) R.B. Primack, 6th ed. Sinauer Associates** **(3)- Animal diversity (2012) C. Hickman 6th ed. McGraw-Hill**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Molecular Biology
4013612-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Molecular Biology (4013612-4**)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding of essential topics of molecular biology and to be familiar with biotechnology methods and their application.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Advances in Molecular Biology is an upper level course. It is designed to give a good background in current Molecular Biology. The course covers advanced topics in molecular cell biology which include:
1 - The molecular methods to study cells, organelles, and macromolecules.
Structure/function relationships involved in DNA replication, transcription, translation, protein tracking, cytoskeletal organization and function
2-Nucleic acid isolation, and purification, gene expression and gene regulation, gene cloning and the use of the PCR based techniques and sequencing in the diagnosis of genetic diseases
3 - The application of molecular biology in industry, environment and medicine

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to advanced molecular biology	1	4
-The "central dogma" of Biology: DNA and RNA structure	1	4
DNA replication, repair	2	8
Recombinant DNA Technology, Principals Gene Therapy and Human Genome project	1	4
-Gene Expression and Transcription	2	8
Chromosome structure and function, chromatin, prokaryotic operon structure and function. The eukaryotic operon structure and function	1	4
Gene clusters, genes, Gene cloning, PCR and electrophoresis	2	8
-Genomes, transcriptomes and proteomes	1	4
-Genetic code, Protein Synthesis and Modifications	2	8
Applications in the different fields	3	12

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

At end of this course, students should be able to:

1 - understand advanced molecular biology concepts and techniques

2 - To familiarize the practical applications of molecular biology in the agriculture, environmental sciences, industry and in the biological and medical sciences

3-To be able to acquaint and describe the methods and techniques used for nucleic acid isolation , and purification

4- To demonstrate the use of both conventional and advanced PCR - based techniques and sequencing and their applications in the different fields

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals: ----------
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) ----------
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. ----------
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. ----------

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Animal Ecology
4013626-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

1. Course title and code: **Advanced Animal Ecology - 4013626-4**
2. Credit hours 2 credit hours
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc zoology**
4. Name of faculty member responsible for the course **Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)**
5. Level/year at which this course is offered: **Second year / Third semester**
6. Pre-requisites for this course (if any) **N/A**
7. Co-requisites for this course (if any) **N/A**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage? **100 %**	
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **Introduction, ecology of individuals: organisms limiting factors, important a biotic factors, dispread Population ecology. Structure and diversity; biomass system population regulation, interspecific competition. Community and ecosystem ecology: zoogeography, aquatic ecological zones in Saudi Arabia. Ecological relationship between plankton in marine, fresh water and estuarine habitats. Effects of ecological factors on aquatic animals and their media, aquatic community stratification, productivity, methods and measurements and primary productivity. Pollution and various types of pollutants.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
• Introduction to the course and to Ecology	1	2
• Abiotic driving variables I: large-scale climate	1	2
• Abiotic driving variables II: regional to microclimate	1	2
• Physiological Ecology I: Water and solute balance	1	2
• Physiological Ecology II: Energy and heat	1	2
• Response to environmental variation	1	2
• Population structure and growth	1	2
• Population fluctuations and cycles	1	2
• Competition	1	2
• Predation	1	2
• Community structure and development	1	2
• Conservation	1	2
• Pollution glossary, pollution and the food chains.	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Be familiar with The physical environment (climate, seasons)
- determine aquatic biomes, terrestrial biomes and density)
- Understand global climate change and its impact on ecosystems.
- Differentiate between Availability & hazards
- Understand growth vs. mortality,
- Distinguish individual variations
- Coping with environmental variability
- Understand various habitats
- Good understanding of Diel and seasonal movements
- Models Present information clearly in the form of verbal reports
  Communicate complex ideas and arguments in a clear, concise and effective manner
  Work effectively as an individual or part of a team
  Use conventional and electronic resources to collect, select and organize complex scientific information

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **Booth,W.C., G.G.Colomb and J.M.Williams. 2008. The craft of research.3rd edn. The University Of Chicago Press, Chicago, IL.** **Railsback, S.F., and V. Grimm. 2011. Agent- based and individual- based modeling:** **A practical introduction. Princeton University Press, Princeton, NJ.**
2. List Essential References Materials (Journals, Reports, etc.) • **Journal of animal ecology.** **Other related journals**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Animal Physiology
4013622-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Animal Physiology (4013622-4**)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any) **Animal Physiology**
7. Co-requisites for this course (if any)
8. Location if not on main campus **Alazahir campus- Girls section**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		hat percentage?	
c. e-learning		t percentage?	
d. correspondence		at percentage?	
f. other		t percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? The main goal of the course is to introduce an advance understanding of the importance of metabolic activities control in living organisms, molecular, biological, neural, hormonal and homeostatic controlling mechanisms in living organisms.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
The structure of the brain and the nervous system	**1**	**4**

Types and functions of the nerve cells (neurons) and neuroglia and its physiological functions.	1	2
Advanced study on the conduction and transmission of nerve impulses and neurotransmitters.	1	2
The relationship between the nervous system and the endocrine system (The target tissues)	1	2
Endocrine hormones, biosynthesis, regulation of hormones secretion, mechanism of hormone action, degradation and elimination, and hormone metabolic disorders	1	4
Endocrinology of reproduction	1	2
gonads hormones, ovulation, fertilization and infertilization.	1	4
natural immune innate and acquired immune, mechanism of action.	1	2
Lymphatic system and immune cells	1	2
Antigens and antibodies	1	4
Immune response to infections	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	30					30
Credit	4					4

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- Understand the structure of the brain and the nervous system.
- Identify and differentiate types and functions of the nerve cells (neurons) and neuroglia and its physiological functions.
- Demonstrate the conduction and transmission of nerve impulses and neurotransmitters.
- An introduction to the relationship between the nervous system and the endocrine system (the target cells) Endocrine hormones, biosynthesis, regulation of hormones secretion, mechanism of hormone action, degradation and elimination, and hormone metabolic disorders.
- Illustrate the endocrinology of the reproductive system, gonads hormones, ovulation, fertilization and the causes of infertilization.
- Understand the immune system and how can the body fights the diseases.
- Write information clearly in weekly reports
- Visit libraries and make notes of the upcoming lectures.
- Work effectively as an individual or part of a team
- Use scientific resources to collect the information.
- Be able to analyses data and compare it with other studies.
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working effectively with others as a member of a team.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised. **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks • **Carpenter, R. and Reddi, B. (2012): Neurophysiology: A Conceptual Approach, Fifth Edition 5th Edition Hodder Arnold.** • **Marieb, E.N: Essential of Human Anatomy &Physiology. Seven edition, Benjamin Cummings.** • **Wilson, J.A. : Principles of animal physiology. Second edi, Collier Macmillan.** • **DI Lebovic, JD Gordon, RN Taylor (2005): Reproductive Endocrinology and Infertility: Handbook for Clinicians. Scrub Hill Press** • **Frank, S. (2002) Immunology and Evolution of Infectious Disease, Princeton University Press.**
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: **(1)- Journal of Animal Physiology and Animal Nutrition (Wiley Online Library)** **(2)- Biochemistry & Physiology: Open Access** **(3)- Endocrinology & Metabolic Syndrome** **(4)- Acta Physiologica (Wiley Online Library)** **(5)- Experimental physiology (Wiley Online Library)** **(6)- Frontiers in physiology (Open Access)**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Endocrinology
4013625-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Endocrinology (4013625-4**)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any) **Endocrinology**
7. Co-requisites for this course (if any)
8. Location if not on main campus **Alazahir campus- Girls section**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? The main goal of the course is to introduce an advance understanding of the structure and function of the endocrine system**, the interrelation of the nervous system, the secretion of the hormones, hormones and animal behavior, hormones homeostasis.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
The structure and function of the endocrine system	**1**	**2**
The interrelation of the nervous system and endocrine gland (target tissues)	**1**	**2**
Chemical structure and function of the hormones	**1**	**2**

Advance study on the hormones biosynthesis, releasing factors, effects, degradation and elimination, disorders of metabolism and assays.	1	8
Hormonal assays.	1	2
Interrelation of the hypothalamus and the pituitary gland	1	2
Interrelation of the pituitary gland and the ovary	1	2
Ovulation and the menstrual cycle.	1	2
Fertilization, hormonal control of pregnancy and function of the placenta	1	4
Prostaglandins	1	2
Biological clock and the role of the pineal gland	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	30					30
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- **Understand the structure and function of the endocrine system and the interrelation on the hypothalamus and the endocrine gland**
- **Determine the hormones biosynthesis, releasing factors, effects, degradation and elimination, disorders of metabolism and assays.**
- **Demonstrate the Fertilization, hormonal control of pregnancy and function of the placenta**
- **Write information clearly in weekly reports**
- **Visit libraries and make notes of the upcoming lectures.**
- **Work effectively as an individual or part of a team**
- **Use scientific resources to collect the information.**
- **Be able to analyses data and compare it with other studies.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working effectively with others as a member of a team.**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- DI Lebovic, JD Gordon, RN Taylor (2005): Reproductive Endocrinology and Infertility: Handbook for Clinicians. Scrub Hill Press
- Nussey S, Whitehead S(2001) Endocrinology: An Integrated Approach Oxford: BIOS Scientific Publishers; 2001.
- Greenspan, F.S, Strewler, G.J (1997): Basic &Clinical Endocrinology, Fifth edi, Appleton& Lange.
- Brook, C. and Marshall, N. (1996). Essential Endocrinology, Blackwell Science UK.
- Braverman, L.E. (2003): Diseases of the thyroid, Human Press, Totowa, New Jersey.

2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: **(1)- International journal of endocrinology** **(2)- Endocrinology (Oxford academic)** **(3)- Endocrinology & Metabolic Syndrome** **(4)- Frontiers in endocrinology, Experimental endocrinology** **(5)- European Journal of Endocrinology**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Entomology
4013623-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Entomology (4013623-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Mohamed (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is Understand insect adaptation and evolutionary processes, learn the basic external morphology of insects and how it is used in classification, learn the basic internal anatomy of insects, and how it is adaptive, and describe the life cycles of important insect groups.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage of the human – insect relationship, 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.**

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
The insect - human relationship	**1**	**4**
The integument and its components and function, the color and coloration of insects. The different tegmata of insect body; head structure, the segmentation theory, the tentorium, orientation and its appendages .Types of antennae and mouth – parts modifications	**3**	**12**
The thorax and its sclerites, endothorax structure. The thoracic appendages; the leg structure and modification. The wing structure, articulation, regions, venation, and wing coupling apparatus.	**2**	**8**
The abdomen and its sclerites, endoskeleton structure. The abdominal appendages, the non-reproductive and reproductive which include the ovipositor (structure, function, and modification) and the male genitalia (structure, function, and modification).	**2**	**8**
Muscular system, minute structure of muscles and muscular power of insects. The nervous system as whole, the brain structure, histological elements, and its modifications of different insect orders. The visceral nervous system and supraspinal cord. The sensory organs, the eye and insect vision, the organs of smell, taste, hearing, and sound of insects.	**2**	**8**
The digestive canal and its appendages; structure, function, modification of different insect orders and it histological structure. The digestion of insects. The excretory system, Malpighian tubules and its number.	**2**	**8**
The circulatory system and its diaphragm, sinuses, dorsal vessels and accessory pulsatory organs. The heamolymph structure and circulation. The respiratory system, structure of trachea and spiracles. The mechanism of respiration and respiratory movement of insects. The air sacs and its uses. The rectal and tracheal gills.	**2**	**8**
The reproductive system. The male organs of reproduction (the testes, the seminal ducts, the ejaculatory ducts, the accessory glands, the spermatozoa and its formation. The female organs (the ovaries and ovarian tubules, the origin of incipient egg, the bursa copulatrix, the spermatheca, the colleterial glands, the vagina and the uterus). The metamorphosis of insects. The ametabolous and metabolous stages. The life cycle of important insect groups.	**2**	**8**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Recognize the different insect tagmata.**
- **Mastered drawing insect and its internal systems.**
- **Distinguishes between insect orders.**
- **Design models of insect life cycle.**
- **Present information clearly in the form of verbal reports**
- **Communicate complex ideas and arguments in a clear, concise and effective manner**
- **Work effectively as an individual or part of a team**
- **Use conventional and electronic resources to collect, select and organize complex scientific information**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management**
- **Critically evaluate their personal performance both as an individual and within a team**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1) (1)-D.B. Tembhare, 1997. Modern entomology. Himalaya Publ. House.
(2) (2)- P.J. Gullan & P.S. Cranston, 2000. The insects: An outline of Entomology. Blackwell Science, USA.
(3) (3)- R.F. Chapman, 1969. The insects – structure and function. The Eng. Language Book Society.
(4) (4)- Beutel, R.G.; Friedrich, F.; Yang, Xing-Ke; Ge, Si-Qin **(2013). Insect Morphology and Phylogeny: A textbook for students of entomology. De Guyter, Berlin. (ISBN: 9783110262636)**
(5) (5)- P.J. Gullan (2004). The insects: an outline of entomology. Wiley-Blackwell. (ISBN: 1405111135).

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(6) Arthropod structure & development.
(7) Journal of applied entomology.
(8) The entomologist's record and journal of variation.
(9) The entomologist.
(10) Systematic entomology.
(11) Polish journal of entomology.
(12) Journal of the entomological society of Ontario.
(13) Journal of insect science.
(14) **Florida entomologists.**

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Genetic
4013627-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Genetics – (4013627-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

The major objective of the course is to provide theoretical understanding of essential topics and basis of inheritance and to develop their knowledge about genetic engineering

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Advances in Genetics is an upper level course. It is designed to give a good background in current genetic engineering. The course covers advanced topics in genetics which include:

- **Cytological basis of inheritance**
- **Structure of chromosome, structural and numerical chromosomal aberration**
- **Sex determination and fertility as affected by chromosomes**
- **Genetic material, replication, expression and mutation**
- **Genetic manipulation and methods of studying the genome**
- **Genetic engineering and its application**
- **Transgenes and transgenic animals**
- **Genetics and diseases**
- **Genetic control of animals diseases**

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Genetic history, Mendelian and non-Mendelian inheritance	2	8
Chromatin, chromosome structure and Chromosome aberration	2	8
Gene linkage and genetic maps	1	4
Molecular genetics (central dogma)	2	8
Genetic manipulation and methods of studying the genome	1	4
Genetics of cancer and diseases	2	8
DNA fingerprinting	1	4
Genetic analysis, screening, and therapy	2	8
The genetics of cloning	2	8
Population genetics and evolution	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

At end of this course, students should be able to:

-Understand Basis of inheritance

- Demonstrate different mechanisms of chromosomal aberrations and its reflection on phenotype of individual.

-To be able to acquaint and describe different characteristics of genetic material and different methods of its manipulation and applications.

- To demonstrate relationship between the genetic material, diseases, immunity and the control of these diseases.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

-Understand Genetics (A molecular approach): 1988 4th edition. Rothwell NV. Oxford Univ. Press. New York
- Modern Genetic analysis 2002, 2nd ed.. Griggith AJF, Gelbart WM, Lewentin RC and Miller JH-

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

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3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

(1)- Questionnaires / students opinion survey
(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

1)- Revision of student answer papers / assignments by another staff member.
(2)- Analysis the grades of students.

3 Processes for Improvement of Teaching

(1)- Preparing the course as PPT. **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Histology
4013621-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

1. Course title and code:
Advanced Histology 4013621-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc Zoology

4. Name of faculty member responsible for the course
Dr. Faiza A. Mahboub (famahboub@uqu.edu.sa)

5. Level/year at which this course is offered: **First year / First semester**

6. Pre-requisites for this course (if any)
N/A

7. Co-requisites for this course (if any)
N/A

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
   - **The main goal of the course is to introduce an advance understanding of the structure and function of the Histological structure of the different tissue types.**
   - **Understanding the interaction between the different tissues.**

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction of the General Histology (epithelium Tissues, connective tissues, muscular tissue and nervous tissues)	**2**	**8**
Histology of the immune system (lymph nodes, tonsils, spleen, thymus)	**2**	**8**
Histology of the sense organs (ear, eye, taste buds).	**1**	**4**
Histological structure of Circulatory system	**1**	**4**
Histology of the central nervous system.	**1**	**4**
oral Histology (oral cavity, teeth, salivary glands, sub lingual sub mandibular and parotid)	**1**	**4**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**32**	**8**				**40**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand and identify the normal structure and function of each of four principle tissues.**
- **Understanding the interaction between the four types of the tissues.**
- **Demonstrate the structure of circulatory system and its organs and the relationship with another system of the body.**
- **Write information clearly in weekly reports.**
- **Visit libraries and make notes of the upcoming lectures.**
- **Work effectively as an individual or part of a team**
- **Use scientific resources to collect the information.**
- **Be able to analyses data and compare it with other studies.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working effectively with others as a member of a team.**
- **Describe the histology of tissues using appropriate biomedical terminology**
- **Recognize and name tissues on microscopic images**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 8 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks • **Neelam Vasudeva, Sabita Mishra(2016): Inderbir Singh's Textbook of Human Histology: With Color Atlas and Practical Guide.8th edi. Jaypee.** • **Luiz Carlos Junqueira and Jose Carneiro(2010): Basic Histology: Text & Atlas: Text and Atlas (Junqueira's Basic Histology) McGraw-Hill Medical; 11 edition.** • **Luiz Carlos Uchôa Junqueira (2014): Histologia Básica. Texto e Atlas (Em Portuguese do Brasil) (Portuguese Brazilian).** • **Luiz Carlos Uchôa Junqueira (2012): Biologia Celular e Molecular (Em Portuguese do Brasil) (Portuguese Brazilian).**
2. List Essential References Materials (Journals, Reports, etc.) **1) Journal of Histology & Histopathology.** **2) Egyption Journal of Histology(Egypt).** **3) Journal of Cytology & Histology (USA).**
2. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 60 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **- Class rooms are equipped with data show.**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtube.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Insect Physiology
4013671-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Insect Physiology (4013671-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Mohamed (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding how insects live and reproduce. This is a historic area of research that continues today in order to give us a good idea of the insect weakness areas, which can be exploited in the pest management, and provides insights into biomedical questions.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage of insect physiology with emphasis on regulatory mechanisms. We start with the overview of insect external and internal anatomy and then learn about growth cycles, reproduction and their hormonal regulation. Next, we will learn about**

physiology of nutrition, metabolism, circulation and respiration. In the final part, we will cover physiological basis of behavior including nervous and muscular systems, sensory physiology, and chemical communication.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Overview of insect anatomy and physiology	1	4
Growth, molting and metamorphosis. Hormonal control of molting and metamorphosis. Development from egg to larva	3	12
Biological clocks, diapause, migration. Feeding, digestion, and metabolism,	4	16
Circulation and immunity. Excretion and osmoregulation.	3	12
Respiration. Insects on the move: locomotion and flight	2	8
Nervous system, Chemoreception: taste and olfaction	2	8
Mechanoreceptors, hearing, and vision. Communication systems	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Acquire specialized names and terms relevant to insect physiology.**
- **Analyze and integrate information pertaining to specific physiological systems.**
- **Explain cellular and molecular basis of specific physiological processes.**
- **Compare functioning of physiological systems in different orders of insects.**
- **Present information clearly in the form of verbal reports**
- **Communicate complex ideas and arguments in a clear, concise and effective manner**
- **Work effectively as an individual or part of a team**
- **Use conventional and electronic resources to collect, select and organize complex scientific information**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management**
- **Critically evaluate their personal performance both as an individual and within a team**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- J. W. L. Beament, J. E. Treherne, and V. B. Wigglesworth (1968). Advances of insect physiology. Academic press (SBN: 120242052).

(2)- P. D. Evans and V. B. Wigglesworth (1986). Advances of insect physiology. Academic Press. (ISBN: 0120242192).

(3)- S. J. Simpson (2005). Advances of insect physiology. Elesvier Ltd. (ISBN: 9780120242320).

(4)-James L. Nation (2015). Insect physiology and biochemistry. CRC Press. (ISBN: 9781482247589).

(5)- Russel Jurenka (2016). Advances of insect physiology. Elesvier Ltd. (ISBN: 9780128025864)

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Archives of Insect Biochemistry and Physiology.

(2)- Entomological Science.

(3)- Insect Biochemistry and Molecular Biology.

(4)- Journal of Insect Physiology.

(5)- Journal of Insect Science.

(6)- Physiological Entomology.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show

(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show. **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Invertebrate Zoology
4013629-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

3. Course title and code:
Advanced Invertebrate Zoology - 4013629-4

2. Credit hours: **4 credit hours**

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc Zoology

4. Name of faculty member responsible for the course
Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)

5. Level/year at which this course is offered: **Second year / Third semester**

6. Pre-requisites for this course (if any)
N/A

7. Co-requisites for this course (if any)
N/A

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
The main aim of the course is to provide fundamental and advanced understanding on various invertebrates' phyla to the student for better understanding of modern taxonomy.
Also make the student familiar with different invertebrate groups and understand their role in the environment.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction	1	2
The various invertebrate phyla	1	2
Invertebrate anatomy;	1	2
Invertebrate natural history;	1	2
Collection methods;	1	2
Invertebrate behavior	1	2
Free Living Protozoa	1	2
Porifera	1	2
Cnidaria	1	2
Rotifera	1	2
Mollusca	1	2
Arthropod	1	2
Echinoderm	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **The student should be able to name 70% of the major invertebrate phyla on the lab exams.**
- **the student should be able to identify 70% of the parts of the invertebrate anatomy on the lab exams.**
- **the student should be able to discuss the invertebrate phyla on essay questions.**
- **Present information clearly in the form of verbal reports**

Communicate complex ideas and arguments in a clear, concise and effective manner
Work effectively as an individual or part of a team
Use conventional and electronic resources to collect, select and organize complex scientific information
Be able to assimilate and synthesize data from multiple sources
Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills
Demonstrate effective communication skills in the form of student led group presentations.
Demonstrate skills in working collegiately and effectively with others as a member of a team.
Set priorities and link these with effective time management
Critically evaluate their personal performance both as an individual and within a team

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	**Week Due**	**Proportion of Total Assessment**
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs. per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

Pechenik, Jan A. 2015. Biology of the Invertebrates. 7th Edition. McGraw-Hill. ISBN: 9781308347639.

4. List Essential References Materials (Journals, Reports, etc.)

- **ISJ - Invertebrate Survival Journal.**
- **Invertebrate Reproduction & Development**
- **African Invertebrates**
- **Journal of Crustacean Biology**

Other related journals

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

(1)- Questionnaires / students opinion survey
(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

(1)- Revision of student answer papers / assignments by another staff member. **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Alternative Methods of Pest Control
4013672-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Alternative Methods of Pest Control (4013672-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Mohamed (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course, there is an urgent need to use environmentally safe pesticides, which do not sneak into human food or animals and then back at him and damage the environment.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage of types of pests. The types of chemical pesticides and their advantages & hazards. The environmental safe pesticides (the insect antifeedants, attractants, repellants,**

biological control, microbial control, phermonal control, hormonal control, chemosterilants, radioactive isotopes and ionizing radiation). It will also be a study of modern technologies of pest control as genetic control and using of photosensitizers and nanotechnology. Finally, how to use all of the previous techniques in IPM project.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction, what is the pest, antiquity of pest problem, what turned insects into pests, and what causes pest outbreaks.	1	4
Natural control including climatic, natural barriers, natural enemies and diseases. General methods including cultural control, mechanical control, physical control, and legal control	2	8
Insecticides history, forms of insecticides, insecticides additives, synergists, types of formulations, consideration for insecticides application, methods of insecticides dilution, residual action and residues, median lethal dose (LD_{50}) , median residual life (RL_{50}), factor influencing insecticides efficiency, insecticides compatibility. The inorganic insecticides and its classification (arsenic compound, fluorides, Sulphur, and miscellaneous compound).	2	8
Natural organic insecticides (petroleum oils and botanical insecticides). Synthetic organic insecticides (organophosphates, carbamates, and miscellaneous compounds). Mode of action of insecticides. Metabolism of insecticides. Resistance to insecticides. The insecticides advantages and hazards.	2	8
Insect antifeedants (definition, classification, mode of action, and advantages & disadvantages). Insect attractants (definition, types of attractants, uses of attractants, and advantages & disadvantages). Insect repellents (definition, types of repellents, uses of Repellants, and advantages & disadvantages)	2	8
Biological control (definition, procedures adopted in biological control, predators, parasites, and advantages & disadvantages). Microbial control (definition, traits desirable in pathogens, principle group of pathogen, toxin produced by microbes, host resistance to pathogen, mode of pathogen transmission, mass production of pathogen, and advantages & disadvantages). Pheromonal control (chemicals to which insect react, mode of pheromone application and advantages & disadvantages).	2	8
Hormonal control (endocrine system of insects, kind of insect hormones, function of hormones, concept of hormonal control, insect hormones and problem of resistance and advantages & disadvantages). Chemosterilants (definition, classification of chemosterilants, mode of application, and advantages & disadvantages). Radioactive isotopes and ionizing radiation	2	8
Photosensitizers (definition, classification of photosensitizers, mode of action, and advantages & disadvantages). Genetic control (definition, methods of genetic control, and advantages & disadvantages). The uses of nanotechnology in pest control.	2	8
Integrated pest management (IPM), definition, logics and necessity of IPM, tools of IPM, integration of existing methods.	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Identify the different types of pests.
- Define the major concepts in field of pest control and pesticides toxicology. As well as the major applications of pest control and pesticides toxicology in solving biological and environmental problems.
- Apprehend the basic information and techniques related to pest control and pesticides toxicology.
- Present information clearly in the form of verbal reports

- Communicate complex ideas and arguments in a clear, concise and effective manner
- Work effectively as an individual or part of a team
- Use conventional and electronic resources to collect, select and organize complex scientific information
- Be able to assimilate and synthesis data from multiple sources
- Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working collegiately and effectively with others as a member of a team.
- Set priorities and link these with effective time management
- Critically evaluate their personal performance both as an individual and within a team

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- Rajinder Peshin and David Pimentel (2016). Integrated pest management: experiences with implementation global overview. Springer (ISBN-13: 9789402400212).
(2)- Rajinder Peshin and David Pimentel (2014). Integrated pest management. Pesticide and problems, vol 3. Springer (ISBN-13: 9789400777958).
(3)- K.P. Srivastava (1996). Text book of applied entomology. Kalyani Publishers (ISBN: 8176638072).
(4)- Robert L. Metcalf (1992). Destructive and useful insects: their habits and control. Mcgraw – Hill (ISBN: 9780070416925).
(5)-Pfadt (1985). Fundamental of applied entomology. Prentice Hall (ISBN-13: 9780023954900).

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Agricultural and Forest Entomology.
(2)- Applied Entomology and Zoology.
(3)- Arthropod Management Tests.
(4)- BioControl.
(5)- Biocontrol Science and Technology.
(6)- Journal of Applied Entomology.
(7)- Journal of Integrated Pest Management.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Animal Ecology and Pollution

4013665-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

1. Course title and code:
   Animal Ecology and pollution - 4013665-4
2. Credit hours 2 credit hours
3. Program(s) in which the course is offered.
   (If general elective available in many programs indicate this rather than list programs) **MSc zoology**
4. Name of faculty member responsible for the course
   Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)
5. Level/year at which this course is offered: **Second year / fourth semester**
6. Pre-requisites for this course (if any) **N/A**
7. Co-requisites for this course (if any) **N/A**
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

This course aims to study the global environmental systems and the imbalance these systems are facing. The course includes three parts:
1) Introduction to the environmental systems of the earth and the mutual relationship between the environmental components and the living species.
2) Studying the negative effects of human activities and the environmental imbalance.
3) Focuses on different types of the environmental pollution, air pollution and its consequences such as acid rain and the deterioration in the ozone; radiation pollution, noises pollution and marine pollution….etc.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
• Introduction to the course and to Ecology	1	2
• Habitats and Ecosystems	1	2
• Introduction to Ecotoxicology	1	2
• Animal Behavior and Adaptation to Extreme Environments	1	2
• Impact of Climate Change on environment	1	2
• Thermal pollution	1	2
• Water pollution	1	2
• Air pollution and related phenomena	1	2
• Soil pollution	1	2
• Energy pollution	1	2
• Food pollution	1	2
• Valuing the Environment	1	2
• Environmentally Protective Management	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Understand global climate change and its impact on ecosystems.
- Coping with environmental variability
- Understand various habitats
- Collect and interpret physicochemical data to determine the characteristics and "health" of ecosystems.
- Apply concepts of various ecosystems to formulate solutions for real -life management problems such as different pollution issues.
- Communicate complex ideas and arguments in a clear, concise and effective manner

Work effectively as an individual or part of a team

Use conventional and electronic resources to collect, select and organize complex scientific information

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their

private offices at the times advised. **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **Abel, P.D. 1996. Water Pollution Biology. Second Edition. Taylor & Francis. ISBN 0748406190** **Taylor, E.W. (Ed.) 2009. Toxicology of aquatic pollution. Physiological, Molecular and Cellular Approaches. First edition. Cambridge University Press. ISBN 13:9780521105774**
• List Essential References Materials (Journals, Reports, etc.) • **International Journal of Environment and Pollution.** **Other related journals**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Aquatic and Economic Invertebrates
4013663-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

- Course title and code:
  Aquatic and Economic Invertebrates- 4013663-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc Zoology

4. Name of faculty member responsible for the course
Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)

5. Level/year at which this course is offered: **Second year / Fourth semester**

6. Pre-requisites for this course (if any) **N/A**

7. Co-requisites for this course (if any) **N/A**

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage? **100 %**	
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
The main aim of the course is recognize the diversity of marine zooplankton taxa; the factors that regulate their distribution and abundance; and the fundamental role they play in marine pelagic ecosystems. There are 5 broad themes: 1) Biodiversity and taxonomy, 2) Sampling methods and monitoring programs; 3) Temporal and spatial distributions; 4) Trophic ecology.5) economic invertebrates..

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
1. Establish the role of zooplankton in the pelagic marine community.	**1**	**2**
2. Review zooplankton reproduction and life cycle strategies.	**1**	**2**
3. Become familiar with the technologies available to sample the community in the field and to introduce procedures for laboratory analysis of abundance and biomass.	**1**	**2**
4. Understand how biotic and abiotic factors regulate zooplankton distribution and abundance at various temporal and spatial scales; including larval transport and mero-plankton settlement.	**1**	**2**
5. Establish the role that zooplankton play in marine pelagic food web ecology and biogeochemical cycling; introducing the impact of zooplankton grazing, zooplankton as grazers and predators and the use of 'alternative' food resources.	**1**	**2**
6. Evaluate methods used to determine diet, feeding rates and trophic role in zooplankton through the critiquing of research papers on these subjects.	**1**	**2**
7. Understand how zooplankton can be used as indicators of climate change, and how conditions associated with climate change affect zooplankton species and populations.	**1**	**2**
8. Evaluate the evidence suggesting that problematic jellyfish blooms are increasing in the world's oceans.	**1**	**2**
9. Various economic invertebrate species.	**1**	**2**
10. Establish the role of zooplankton in the pelagic marine community..	**1**	**2**
11. Review zooplankton reproduction and life cycle strategies.	**1**	**2**
12. Become familiar with the technologies available to sample the community in the field and to introduce procedures for laboratory analysis of abundance and biomass.	**1**	**2**
13. Understand how biotic and abiotic factors regulate zooplankton distribution and abundance at various temporal and spatial scales; including larval transport and mero-plankton settlement.	**2**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**28**	**2**				**30**
Credit	**2**	**2**				**2**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Recognise the diversity of mero- and holo-plankton; be able to identify common species of zooplankton using taxonomic features.
- Have a good working knowledge of zooplankton sampling methods and open access databases and how to choose the most appropriate methods to answer specific research questions.
- Understand how biotic (life history strategies, behavior, trophic interactions) and abiotic (hydrodynamics, climate) factors regulate zooplankton distribution and abundance.
- Know how feeding ecology (diet, rates, impact) is determined in zooplankton; understand the role that zooplankton play in marine pelagic food webs and biogeochemical cycling in a variety of marine ecosystems characterized by differing levels of productivity.
- Become more confident in critically evaluating the information you are reading in the scientific literature
- Be aware how plankton dynamics and pelagic ecosystem function will differ in response to hydro climatic variability, through the use of zooplankton indicator species, long-term datasets and hypothesis-testing experiments.
- Present information clearly in the form of verbal reports
  Communicate complex ideas and arguments in a clear, concise and effective manner
  Work effectively as an individual or part of a team
  Use conventional and electronic resources to collect, select and organize complex scientific information

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

Pechenik, Jan A. 2015. Biology of the Invertebrates. 7th Edition. McGraw-Hill. ISBN: 9781308347639.

- List Essential References Materials (Journals, Reports, etc.)

- **ISJ - Invertebrate Survival Journal.**
- **Invertebrate Reproduction & Development**
- **African Invertebrates**
- **Journal of Crustacean Biology**

Other related journals

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr. Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Biochemistry of Nutrition
4013658-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Biochemistry of Nutrition** (4013658-4)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any) **Physiology**
7. Co-requisites for this course (if any)
8. Location if not on main campus **Alazahir campus- Girls section**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The main goal of the course is to introduce an advance understanding of the caloric significance of diets. Total energy requirement and its consumption. Vitamins: their absorption, excretion, functions and daily requirements. Minerals and application of nutrition to critical periods throughout the life span.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
The significance role of calories in diets	**1**	**4**
Advance study on total energy requirement and its consumption	**1**	**4**
Advance study on vitamins: their absorption, excretion, functions and daily requirements. **Vitamins antagonists**	**1**	**4**
Advanced study on minerals in food and their role in nutrition	**1**	**4**
Study on evaluation of fresh and preserved foods.	**1**	**4**
Advance study on diets in some diseases.	**1**	**4**
Body weight control regarding nutrition (e.g. obesity, underweight, anorexia nervosa).	**1**	**4**
Diets in some inborn errors of metabolism	**1**	**2**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**30**					**30**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week.	

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- Understand the caloric significance of diets. Minerals and application of nutrition to critical periods throughout the life span.
- Determine the total energy requirement and its consumption.
- Demonstrate the vitamins and minerals: their absorption, excretion, functions and daily requirements.
- Understand of diets in some diseases.
- Write information clearly in weekly reports
- Visit libraries and make notes of the upcoming lectures.
- Work effectively as an individual or part of a team
- Use scientific resources to collect the information.
- Be able to analyses data and compare it with other studies.
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working effectively with others as a member of a team.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks o **Gropper, S. (2000): The Biochemistry of Human Nutrition: A Desk Reference (Health Science) 2nd Edition.** o **Cox, C. (2015): Nutritional Biochemistry: Current Topics in Nutrition Research, Apple Academic Press.1st edition.** o **Harbans Lal: A Text book of Biochemistry, 2nd edition, CBS publisher and distribution. (2011).** o **Mitchell Fry (2010) Essential Biochemistry for Medicine, Wiley publisher.** O **Basten,G. (2011): Introduction to Clinical Biochemistry: Interpreting Blood Results. BookBoon.**
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: **(1)- British Journal of Nutrition (BJN)** **(2)- Public Health Nutrition** **(3)- Endocrinology & Metabolic Syndrome** **(4)- Applied Physiology, Nutrition, and Metabolism** **(5)- Food Quality and Preference (ELSEVIER)** **(6)- The American Journal of Clinical Nutrition.**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Biology of stem cells

4013685-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Biology of stem cells, 4013685-4**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Athary Felemban (aamfelemban@uqu.edu.sa)**
5. Level/year at which this course is offered: **2nd year/ Level 4**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Main campus**
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	**100 %**
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **This course covers in depth stem cells at mammalian. Also, understand the role different types of stem cells, and the importance of stem cells for our health.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Stem cells are defined as precursor cells that have the capacity to self-renew and to generate multiple mature cell types. Stem cells differ from other kinds of cells in the body. Also, understand of stem cell proliferation and differentiation. However, studying the relationship between the stem cell and cancer cells in mammalian, and the clinical use of stem cells.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
General introduction to stem cells	1	4
Embryonic stem cells	2	4
Germline stem cells	3	4
Stem cell epigenetics	4	4
Somatic cell reprogramming	5	4
Hematopoietic stem cells	6	4
Mesenchymal stem cells	7	4
Cardiac stem cells	8	4
Epidermal stem cells/Niche	9	4
Neural stem cells	10	4
Stem cell proliferation and migration in adult	11	4
Neural induction and differentiation of pluripotent stem cells	12	4
Stem cells and cancer	13	4
Tissue engineering using stem cell	14	4
Clinical use of stem cells	15	4
Stem cell research: policies and ethics	16	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Described the stem cells in mammalian.
- Understand the culture stem cells.
- Present information clearly in the form of verbal reports/ seminar or poster presentation.
- Communicate complex ideas and arguments in a clear, concise and effective manner.
- Work effectively as an individual or part of a team.
- Use conventional and electronic resources to collect, select and organize complex scientific information.
- Be able to assimilate and synthesis data from multiple sources.
- Demonstrate capacity for self-learning and independent thinking and to utilize problem-solving skills.
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working collegiately and effectively with others as a member of a team.
- Set priorities and link these with effective time management.
- Critically evaluate their personal performance both as an individual and within a team.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- Lanza, R., Gearhart, J., Hogan, B., Melton, D., Pederson, R., Thomas, E.D., Thomson, J., Wilmut, S.I., 2009. Essentials of Stem Cell Biology, 2nd Edition. Elsevier Inc. ISBN-13: 978-0123747297

(2)- Knoepfler, P., 2013. Stem Cells: An Insider's Guide, 1st Edition. World scientific Publishing Co. Ltd. ISBN-13: 978-9814508803

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Nature (Nature Publishing Group)
(2)-Cell (Science Direct)
(3)- Stem Cell (Wiley)
(4)- Developmental (The Company of Biologists)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of classroom is suitable concerning the number of enrolled students (could accommodate up to 50 students) and air-conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Classrooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **A student feedback system will periodically be administered periodically to address the student thoughts, reactions and concerns to a particular module/s through and interactive discussions between the course instructor and the students.**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Blood physiology/ Blood biochemistry
4013659-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Advanced Animal Physiology (4013622-4**)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any) **Animal Physiology**
7. Co-requisites for this course (if any)
8. Location if not on main campus Alazahir campus- Girls section
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The main goal of the course is to introduce an advance understanding of the importance of blood composition. Erythrocyte, leucocytes and platelet composition. Advance study on hemoglobin and metabolism of iron and its storage disorders. Blood clotting mechanism. Inherited disorders of hemoglobin.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Review of blood composition. Erythrocyte, leucocytes and platelet composition	1	4
Review of blood composition metabolism.	2	4
Advanced study on hemoglobin metabolism	1	4
Metabolism of iron and its storage disorders.	1	4
Blood clotting and factors that affect blood clotting metabolism	1	4
Advance study on inherited disorders of hemoglobin (e.g. hemoglobinopathies, porphyrias, sickle cell anemia)	1	4
Advance study on bilirubin metabolism and hyperbilirubinaemia	1	4
Revision	1	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	30					30
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- Understand the importance of blood and its composition.
- Identify and differentiate types and functions of blood cells (Erythrocyte, leucocytes and platelet).
- Demonstrate the hemoglobin and metabolism of iron and its storage disorders.
- An introduction to the Blood clotting mechanism.
- Illustrate the Inherited disorders of hemoglobin and bilirubin.
- Write information clearly in weekly reports
- Visit libraries and make notes of the upcoming lectures.
- Work effectively as an individual or part of a team
- Use scientific resources to collect the information.
- Be able to analyses data and compare it with other studies.
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working effectively with others as a member of a team.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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) Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised. Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks • Harbans Lal: A Text book of Biochemistry, 2nd edition, CBS publisher and distribution. (2011). • Mitchell Fry (2010) Essential Biochemistry for Medicine, Wiley publisher. • Marieb, E.N: Essential of Human Anatomy &Physiology. Seven edition, Benjamin Cummings. • Wilson, J.A. : Principles of animal physiology. Second edi, Collier Macmillan. • Basten,G. (2011): Introduction to Clinical Biochemistry: Interpreting Blood Results. BookBoon.
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: (1) Clinical Biochemistry (ELSEVIER) (2)- Biochemistry & Physiology: Open Access (3)- Biochemistry & Analytical Biochemistry (Blood Biochemistry). (4)- Biochemistry & Physiology:(Open Access) (5)- Biochimica et Biophysica Acta (BBA) -Science Direct (6)- Frontiers in Biochemistry (Open Access)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching (1)- Questionnaires / students opinion survey (2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department 1)- Revision of student answer papers / assignments by another staff member. (2)- Analysis the grades of students.
3 Processes for Improvement of Teaching (1)- Preparing the course as PPT. (2)- Using scientific youtubes. (3)- Coupling the theoretical part with laboratory part (4)- Periodical revision of course content.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Culturing of Economic Aquatic Invertebrates
4013564-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

- Course title and code:

Culturing of Economic Aquatic Invertebrates - 4013564-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc zoology

4. Name of faculty member responsible for the course
Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)

5. Level/year at which this course is offered: **Second year / Fourth semester**

6. Pre-requisites for this course (if any) **N/A**

7. Co-requisites for this course (if any) **N/A**

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?
The main aim of the course is Management, breeding and feeding of economically important aquatic invertebrates; This course offers a lecture-based introductory overview of aquaculture; the culturing and rearing of aquatic plants and animals. Lectures will deal with the following topics: general overview of aquaculture; physical and chemical properties of the aquatic environment; site selection; aquatic engineering; bivalve culture; crustacean culture; health and pathology; growth and nutrition; genetics and reproduction; legal, economic, social and environmental considerations.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction: history, production and trends	**1**	**2**
Physico-chemistry of water, sources of water	**1**	**2**
Culture systems, site selection	**1**	**2**
Aquaculture engineering	**1**	**2**
Bivalve culture	**1**	**2**
Nutrition and growth	**1**	**2**
Legal, economic and social context	**1**	**2**
Shrimp culture	**1**	**2**
Sea cucumber culture	**1**	**2**
Sea urchin culture	**1**	**2**
Sea star culture	**1**	**2**
Porifera culture	**1**	**2**
Collection of Broodstock	**2**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**28**	**2**				**30**
Credit	**2**	**2**				**2**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Describe the historical and current state of aquaculture in the world
- Describe the basic physical-chemical parameters of water that are relevant to aquaculture
- Explain current culture systems and associated basic engineering aspects
- Characterize the biology and culture of major groups of cultured aquatic organisms
- Explain basic reproductive physiology and the application of genetic tools to aquaculture
- Describe the main economic, legal and social contexts associated with aquaculture.
- Present information clearly in the form of verbal reports
- Communicate complex ideas and arguments in a clear, concise and effective manner
- Work effectively as an individual or part of a team
- Use conventional and electronic resources to collect, select and organize complex scientific information

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **Aquaculture. Farming Aquatic Animals and Plants. 2nd edition 2012. J. Lucas and P. Southgate (Editors), 629 pp.** **Aquaculture. Farming Aquatic Animals and Plants. 2003, J. Lucas and P. Southgate (Editors), 502 pp.** **Principles of Aquaculture. R Stickney** **SH 135 S74 1994** **Introduction to aquaculture. M. Landau** **SH 135 L36 1992** **Ecological Aquaculture. The evolution of the blue revolution B. Costa-Pierce** **SH 135 E35 2002** **Cold-water aquaculture in Atlantic Canada A. Boghen** **SH 37 C64 1995**
List Essential References Materials (Journals, Reports, etc.) • **Fisheries and Aquaculture Journal** • **Invertebrate Reproduction & Development** • **Invertebrate Aquaculture** • **Journal of Crustacean Biology** **Other related journals**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and**

study materials
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Developmental of Neurobiology
4013583-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Developmental of Neurobiology, 4013583-4**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Athary Felemban (aamfelemban@uqu.edu.sa)**
5. Level/year at which this course is offered: **2nd year/ Level 4**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Main campus**
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	**100 %**
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **This course covers in depth the development of brain and spinal cord at mammalian. Also, understand the role morphogenesis in center nervous system (CNS) and Neurodegenerative disorders.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The first signs of nervous system development occurs in the third week of gestation, under the influence of secreted factors from the notochord, with the formation of a neural plate along the dorsal aspect of embryos. In this course we will explain the development of brain and spinal cord, and the role of morphogenesis in brain and spinal cord development. To understand how glial cells regulate neural function in mammalian central nervous system (CNS). In addition, the neurodegenerative disorders are those conditions in which the primary pathological event is progressive loss of specific population of central nervous system (CNS) neurons over times.**

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction of developmental of neurobiology	**1**	**4**
Developmental of brain	**2**	**4**
Developmental of spinal cord	**3**	**4**
Role of Morphogenesis in brain development	**4**	**4**
Role of Morphogenesis in spinal cord development	**5**	**4**
Central canal regions	**6**	**4**
Neural specification	**7**	**4**
Neural migration	**8**	**4**
Gliogenesis	**9**	**4**
Neural regeneration and neuron-glia interaction	**10**	**4**
Axonal growth and guidance	**11**	**4**
Synaptogenesis	**12**	**4**
Plasticity and cell death	**13**	**4**
Brain injury	**14**	**4**
Spinal cord injury	**15**	**4**
Neurodegenerative disorders	**16**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the developmental of neurobiology.**
- **Understand the neural regeneration and neural glial cells.**
- **To explain the neurodegenerative disorders.**
- **Present information clearly in the form of verbal reports/ seminar or poster presentation.**
- **Communicate complex ideas and arguments in a clear, concise and effective manner.**
- **Work effectively as an individual or part of a team.**
- **Use conventional and electronic resources to collect, select and organize complex scientific information.**
- **Be able to assimilate and synthesis data from multiple sources.**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem-solving skills.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management.**
- **Critically evaluate their personal performance both as an individual and within a team.**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **(1)- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Walter, P., Molecular Biology of the cell 4th edition. ISBN-13: 978-0815332183** **(2)- Barker, R.A., Barasi, S., Neal, M.J., 2007. Neuroscience at a glance, 3th edition. Blackwell Publishing.** **(3)- Fitzpatrick, D., Purves, D., Augustin G.J., 2001. Neuroscience, 2th edition. (ISBN: 9780878937424).** **(4)-Kandel, E.R., Schwartz, J.H., Jessll, T.M., 2000. Principles of Neural science, 4th edition. McGraw-Hill, New York.**
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: **(1)- Nature (Nature Publishing Group)** **(2)- Developmental (The Company of Biologists)** **(3)- Journals of Neuroscience (Society for Neuroscience)** **(4)- Developmental Biology (Elsevier)** **(5)- PLos ONE (PLOS)**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of classroom is suitable concerning the number of enrolled students (could accommodate up to 50 students) and air-conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Classrooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **A student feedback system will periodically be administered periodically to address the student**

thoughts, reactions and concerns to a particular module/s through and interactive discussions between the course instructor and the students.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

DNA Transcription and Gene regulation
4013673-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **DNA Transcription and Gene regulation (4013673-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply) a. traditional classroom ✓ What percentage? **100 %** b. blended (traditional and online) [ ] hat percentage? [ ] c. e-learning [ ] t percentage? [ ] d. correspondence [ ] at percentage? [ ] f. other [ ] t percentage? [ ] Comments:

B Objectives

1. What is the main purpose for this course? The major objective of the course is to provide theoretical understanding of essential topics of Gene regulation . When students have finished the course they will be able to understand the basis and mechanisms of DNA replication and gene regulation
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

DNA replication and gene regulation is an upper level course. This course will provide students with a basic understanding of gene expression mechanisms with a specific focus on newly emerging topics. This course will be taught from current primary literature, using a textbook as a background resource.

Topics will include transcription, messenger RNA, microRNAs and connections between gene expression steps.

Students will learn how to read and interpret scientific literature through class presentations, discussions and take home assignments.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Gene concept	1	4
Gene Regulation Stages	1	4
Initiation, Elongation and Termination of Transcription	2	8
Post – Transcriptional modifications	1	4
Control of transcriptional elongation	2	8
Chromatin structure and the control of transcription	1	4
Splicing and Mechanism of alternative RNA Splicing	2	8
Role of m RNA stability in gene regulation	1	4
RNA Editing	2	8
Transcription factors	1	4
Activators and mechanism of activation	1	4
Repressors and mechanism of repression	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Topics will include: DNA replication, DNA repair, recombination, transcription ,translation regulation of gene expression and epigenetics. At end of this course, students should be able to:
-To familiarize basic knowledge of the molecular mechanisms in gene expression and regulation
- Understand post-transcriptional gene regulatory events
- Enhancement of oral and written communication skills
- Reading and interpreting scientific literature in gene expression fields

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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) Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised. Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: ----------
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) (1)- Class room is already provided with data show (2)- The area of class room is suitable concerning the number of enrolled students and air conditioned.
2. Computing resources (AV, data show, Smart Board, software, etc.) (1)- Class rooms are equipped with data show. (2)- A computer lab is required and connected to the network for students to gather their data and study materials
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching (1)- Questionnaires / students opinion survey (2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department 1)- Revision of student answer papers / assignments by another staff member.

(2)- Analysis the grades of students.
3 Processes for Improvement of Teaching (1)- Preparing the course as PPT. (2)- Using scientific movies. (3)- Coupling the theoretical part with laboratory part (4)- Periodical revision of course content.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) After the agreement of Department and Faculty administrations; it might include: (1)- Random check of students exam papers / assignments by external examiner (2)- Random check of students exam papers / assignments by internal examiner
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Advanced Histochemistry
4013652-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

2. Course title and code:
Advanced Histochemistry 4013652-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc Zoology

4. Name of faculty member responsible for the course
Dr. Faiza A. Mahboub (famahboub@uqu.edu.sa)

5. Level/year at which this course is offered: **First year / First semester**

6. Pre-requisites for this course (if any)
N/A

7. Co-requisites for this course (if any)
N/A

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Scope and importance of Histology and Histochemistry	**1**	**4**
General principles for the preparation of Tissue for Histological studies.	**1**	**4**
Principle for the preparation of tissues for Histochemical localization of various Substrates and Enzymes	**1**	**4**
Fixation – Principle, Aims and Objectives of fixatives. Chemical action of fixatives on cells and tissue components	**1**	**4**
The Theory of Staining and its importance	**1**	**4**
Cryostat and Importance of Enzyme Histochemistry.	**1**	**4**
Localization of enzymes in tissues, Alkaline and Acid phosphates.	**1**	**4**
Application of Histochemical methods for the detection of various types of Carcinoma and Immunofloroscent techniques.	**1**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	**32**	**2**				**34**
Credit	**4**	**4**				**4**

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the importance of all organic and none organic substance found in animal tissues.**
- **Knowing the homeostasis of enzymes in the different tissues of the body and the disturbance leading to disorders.**
- **Identify and differentiate symptoms associated with major chemical compounds.**
- **Present information clearly in the form of verbal reports.**
- **Work effectively as an individual or part of a team.**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Critically evaluate their personal performance both as an individual and within a team.**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**20%**
2	**Short essay**		**10%**
3	**Short written exam**		**40%**
4	**Long literature review**		**30%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 8 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- Histological and Histochemical Methods: Theory and Practice, 4th Edition by John Kiernan.
- Diagnostic Histochemistry by Mark R Wick, MD.
- Lectin Histochemistry: A Concise Practical Handbook by S A Brooks, A J C Leathem, U Schumacher.
- Histological and Histochemical Methods: Theory and Practice by J A Kiernan.

2. List Essential References Materials (Journals, Reports, etc.)

- Progress in Histochemistry and Cytochemistry.
- European Journal of Histochemistry.
- Immunohistochemistry

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show

(2)- The area of class room is suitable concerning the number of enrolled students (could

accommodate up to 60 students) and air conditioned.
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **- Questionnaires / students opinion survey.** **- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **- Revision of student answer papers / assignments by another staff member.** **- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **- Random check of students exam papers / assignments by external examiner** **- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Environmental Science and Water Management
4013667-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

- Course title and code:
  Environmental Science and Water Management - 4013667-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc zoology

4. Name of faculty member responsible for the course
Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)

5. Level/year at which this course is offered: **Second year / Fourth semester**

6. Pre-requisites for this course (if any) **N/A**

7. Co-requisites for this course (if any) **N/A**

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

The course covers the water cycle (hydrologic cycle), rivers and lakes, groundwater supply, rainwater harvesting, and wetlands. Water quality and its assessment, water use, and wastewater disposal will be studied.
The concepts, principles, and tools for Integrated Water Resources Management (IWRM) are introduced. This knowledge is important in the areas of regulation, remediation, and environmental protection.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
• Introduction The concept of Integrated Water Resources Management	1	2
• The hydrosphere and hydrological cycle and its compartments	1	2
• Water sources (Groundwater; Surface water; Precipitation) • Hydrological measurements and catchment water balance • Climatic and meteorological factors	1	2
• Pollution of the aquatic environment (Types and sources of pollution; Point and non-point sources); The mass balance concept	1	2
• Water quality and its assessment (Physical, chemical and biological water quality parameters;	1	2
• Water source monitoring and sampling; Field and laboratory water quality analyses); Water quality measurements	1	2
• Guidelines and standards for water quality (Water and health; Drinking water quality guidelines; Effluent discharge guidelines; Stream quality guidelines)	1	2
• Water treatment (Reasons/objectives for water treatment; Types of water treatment processes)	1	2
• Water demand, water use, and the causes of water stress;	1	2
• Erosion and deforestation/reforestation	1	2
• Effects of water pollution (Changes in water quality; Eutrophication; Algal blooms)	1	2
• Water pollution control and water quality management	1	2
• Integrated Water Resources Management principles and practice.	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- describe the concept of the water cycle (hydrologic cycle) and how water moves from one compartment to another
- assess water demand, water use, and the causes of water stress
- analyze basic water quality parameters in the laboratory& field and the indications of water quality result analyses.
- Communicate complex ideas and arguments in a clear, concise and effective manner

Work effectively as an individual or part of a team • **Use conventional and electronic resources to collect, select and organize complex scientific information**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

• List Required Textbooks: • **Water on the Great Plains: Issues and Policies By Peter J. Longo; David W. Yoskowitz** • **The Economic Value of Water By Diana C. Gibbons** • **Water for Life: Water Management and Environmental Policy (Cambridge Studies in Environmental Policy) 1st Edition by James L. Wescoat Jr (Author), Gilbert F. White.**
• List Essential References Materials (Journals, Reports, etc.) • **Water and Environment Journal.** • **The Journal of Environmental Science and Management (JESAM) (ISSN 0119-1144)**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**

2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Forensic Entomology
4013670-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Forensic Entomology (4013670-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Shehata (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide understanding of the importance and role that arthropods play in civil and criminal investigations.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage that presents current information on the role of arthropods in decomposition, the role of forensic entomology in criminal and civil investigations and the increasing importance of science on society. The material discussed in this course deals with death and some may consider images and concepts presented disturbing.**

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction: Perceptions and status of forensic entomology	1	4
General entomology and insect biology. Insects of forensic importance. Collection of entomological evidence during legal investigations.	3	12
Laboratory rearing of forensic insects. Factors that influence insect succession on carrion. Insect succession in natural environment. The role of aquatic insects in forensic investigations.	3	12
Recovery of anthropological, botanical, and entomological evidence from buried bodies and surface scatter. Estimate of postmortem interval. Insect development and forensic entomology. The soil environment and forensic entomology.	3	12
Entomotoxicology: insect as toxilogical indicator. Molecular methods for forensic entomology. The forensic entomologist as expert witness. The ecological theory and its application in forensic entomology.	3	12
Forensic meteorology, the application of weather and climate. Entomological alteration of bloodstain evidence. Cases of neglect involving entomological evidence.	2	8
Key of dipteran flies.	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Understand the importance role of insect in criminal investigations.
- Describe and rearing forensic insects
- An introduction the ecological theory and its application in forensic entomology.
- Identify the key of dipteran flies.
- Present information clearly in the form of verbal reports
- Communicate complex ideas and arguments in a clear, concise and effective manner
- Work effectively as an individual or part of a team
- Use conventional and electronic resources to collect, select and organize complex scientific information
- Be able to assimilate and synthesis data from multiple sources
- Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills
- Demonstrate effective communication skills in the form of student led group presentations.
- Demonstrate skills in working collegiately and effectively with others as a member of a team.
- Set priorities and link these with effective time management
- Critically evaluate their personal performance both as an individual and within a team

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- David B. Rivers and Gregory A. Dahlem (2014). The science of forensic entomology. Wiley Backwell. (ISBN: 9781119940364).
(2)- Gennard D.E. (2012). Forensic Entomology: An Introduction. 2nd Ed. John Wiley & Sons, Ltd. Sussex England.
(3)- Jason H. Byrd and James L. Castner (2010). Forensic entomology: the utility of arthropods in legal investigation. 2nd Ed. CRC Press (ISBN-13: 9780849392153).
(4)- Zakaria Erzinclioglub(2003). Maggots, Murder, and Men: Memories and reflection of forensic entomologists. Harley books (ISBN: 031231132-X).
(5)- James L. Castner and Jason H. Byrd (2000). Forensic insect identification card (grommet, screwpost bind, laminated). CRC Press (ISBN-13: 9780962515088).

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Annals of the Entomological Society of America.
(2)- Dipterists Digest.
(3)- Entomofauna.
(4)- Journal of Applied Entomology.
(5)- Journal of Insect Pathology.
(6)- Journal of Medical Entomology.
(7)- Journal of Insect Conservation.
(8)- International Journal of Innovation Research in Science.
(9)- Frontiers in Microbiology (Open Access)
(10)- Ecological Entomology.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or

regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Genetics and Genomics
4013674-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Genetics and Genomics (4013674-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide a broad knowledge, from an evolutionary perspective, of how genetic variation is formed and inherited, and how it evolves.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **It is designed to give a good background in current genetics and genomics. When students have finished the course they will be able to understand the basis of Genetics for most biological, medical and biotechnical analyses The course covers advanced topics in genetics and genomics which include: Functional Genetics, Model Organisms, Genome Biology, Systems Biology, Comparative Genomics, and Evolutionary Genetics.**

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Pattern of Inheritance - Gene linkage - Mapping - Copy number variation	2	8
Beyond the Double Helix - DNA structure and Histone Modifications - Gene Regulation by Epigenetics and Long Non-Coding RNAs - Epigenetic Therapy	2	8
Molecular Properties of Genes - Concepts of genes and their regulation - Gene regulation in prokaryotes - Gene regulation in eukaryotes	2	8
-Inheritance of genes and traits: different modes of inheritance (e.g. Mendelian and asexual)	2	8
-Inherited diseases: their causes and effects	1	4
-Mutations: the chemistry of DNA damage, the types of mutations, and cellular mechanisms for their repair	2	8
-Genetic differences between human populations: their historical origin and subsequent spread, and their medical importance	2	8
- Pharmacogenomics, forensics, population genetics, diagnostics, medicine and drug development	2	8
System Biology - Concepts of system biology - Frontiers in system biology - Case studies for system biology	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratoryor Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

At end of this course, students should be able to:

1. Describe the patterns of inheritance and explain the principles
2. Explain the roles of epigenetics on the inheritance
3. Select the comparative genomics as a tool to gain knowledge in functional genetics and genomics
4. Describe the gene regulations in prokaryotic and eukaryotic systems
5. Conceptualize the knowledge of system biology and use it to gain an overview of particular research topics

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

2. List Essential References Materials (Journals, Reports, etc.)
High Impact Journals:
---

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)
(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
(1)- Questionnaires / students opinion survey
(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
1)- Revision of student answer papers / assignments by another staff member.
(2)- Analysis the grades of students.

3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Histopathology
4013653-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Histopathology 4013653-4**
2. Credit hours: **4 C. hrs.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Faiza A. Mahboub (famahboub@uqu.edu.sa)**
5. Level/year at which this course is offered: **2nd level of 1st year**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **1. To provide a core knowledge of disease processes affecting the different systems, with particular reference to mechanisms and natural history of disease** **2. To highlight the pivotal role of pathology in the prevention, diagnosis, treatment and prognosis of disease** **3. The curriculum should emphasize the importance of clinic pathological communication and appropriate use of laboratory investigations for pathology services to be used effectively and economically.** **4. Finally, the curriculum should stimulate students interest in pathology so that they will read and expand their core knowledge as a basis for their professional life whatever career they follow**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to Pathology & its related disciplines	1	4
Cell adaptation & injury and tissue deposit	1	4
Inflammation & Repair	1	4
Immunopathology (including amyloidosis)	1	4
Bacterial & Parasitic diseases	1	4
Fungal & viral infections (+AIDs)	1	4
Circulatory Disturbances	1	4
Disturbances of Growth & Neoplasia	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	32	8				40
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

By the end of the course, students should be able to:
1. Define and discuss the main disease categories that may affect the body (general pathology) as well as the basic mechanisms underlying these disorders (etiology, pathogenesis & natural history).
2. Describe the morphologic (microscopic) changes occurring as a result of such disease processes in various organ systems.
3. Determine the fate & complications of each particular disease.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks • Robbins Basic Pathology, Ninth Edition, 2013 Editors: Kumar, Abbas, Aster Publisher: Elsevier Saunders. • Vinay Kumar; Frcpath, Abul K. Abbas and Jon C. Aster. (2016): Robbins Basic Pathology: With Student Consult Online Access, 9e (Robbins Pathology) 9th Edition • Fundamentals of Pathology Paperback – International Edition, 2011. • Textbook of Pathology for BPT Students 1st/2016. • Husain A. Sattar (2014): Fundamentals of Pathology Important web sites:- http://www.kasralainy.edu.eg/elearning/ http://www.pathmax.com/ http://www-medlib.med.utah.edu/WebPath/LABS/LABMENU.html#2 http://www.med.uiuc.edu/PathAtlasf/titlePage.html http://www.medscape.com/pathologyhome http://www.gwumc.edu/dept/path/2F.HTM http://www.path.uiowa.edu/virtualslidebox/ http://www.virtualpathology.leeds.ac.uk/ http://pathology.class.kmu.edu.tw/index.htm http://www.gla.ac.uk/faculties/medicine/teaching/MedCALlist.htm
2. List Essential References Materials (Journals, Reports, etc.) **High Impact Journals:** **American Journal of Pathology cellular and molecular Biology of Disease.** **American Journal of Pathology**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning materia such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.**

(3)- Coupling the theoretical part with laboratory part **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Immunology
4013660-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Immunology (4013660-4**)
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus Alazahir campus- Girls section
9. Mode of Instruction (mark all that apply) a. traditional classroom ✓ What percentage? **100 %** b. blended (traditional and online) [ ] hat percentage? [ ] c. e-learning [ ] t percentage? [ ] d. correspondence [ ] at percentage? [ ] f. other [ ] t percentage? [ ] Comments:

B Objectives

1. What is the main purpose for this course? **The main goal of the course is to introduce the principles of immunology including: development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
the principles of immunology including: development of the immune system, innate immunity and acquired immunity	**1**	**4**
Advance study on the lymphatic system and the immune cells	**1**	**4**
Antigens and antibodies, antigen-antibody reactions, the major histocompatibility complex reactions and antigen presentation, T cell receptors (genetics, structure, selection)	**1**	**4**
The role of immune system to fight the microbes. Immune responses to infectious organisms and tumors	**1**	**4**
Autoimmune diseases, autoimmunity, allergies, and immune deficiencies	**1**	**4**
Autoimmune diseases: Multiple sclerosis (MS)	**1**	**4**
HIV disease	**1**	**4**
Vaccines and antibodies serum	**1**	**2**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	**30**					**30**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- **Communicate effectively in oral and written formats using appropriate vocabulary regarding the immunological response, mechanisms of this response, its regulation and the genetic basis.**
- **Apply scientific principles in the interpretation of immunological responses and data.**
- **Apply an understanding of the roles of immunology in protection against disease and autoimmune disorders to choices in their daily lives.**
- **Write information clearly in weekly reports**
- **Visit libraries and make notes of the upcoming lectures.**
- **Work effectively as an individual or part of a team**
- **Use scientific resources to collect the information.**
- **Be able to analyses data and compare it with other studies.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working effectively with others as a member of a team.**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- **Abul K. Abbas, Andrew H. H. Lichtman, Shiv Pillai, Basic Immunology: Functions and Disorders of the Immune System, Elsevier Health Sciences, Dhu'l-H. 20, 1433 AH - Medical - 336 pages**
- **Sompayrac,L. How the Immune System Works. 5th Edition. 2015, Wiley-Blackwell**
- **Frank, S. (2002) Immunology and Evolution of Infectious Disease, Princeton University Press.**

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)-Journal of Immunology
(2)- Infection and Immunity.
(3)- European Journal of Immunology (Wiley Online Library)
(4)- Nature Reviews Immunology
(5)- International immunology (Oxford academic)
(6)- Frontiers in immunology (Open Access)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show

2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Insect Ecology and Behavior
4013668-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Insect Ecology and Behavior (4013668-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Mohamed (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding insect behavior, the diversity of approaches for studying it, and how this knowledge can be applied to solve human challenge.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage of insect communities and their habitats. Zoo-geographical distribution of insects. A study of the various insect communities and their habitats with emphasis on the ecological factors affecting the prevalence and distribution of insects. Reproduction**

and life cycles of insects and their relationships to the insect bio-tops. The relationship between the insects feeding requirement and their habitat. Provides a theoretical and empirical overview of insect behavior, ranging from physiology underlying behavior to the evolution of behavioral diversity.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Scope of insect ecology. What are insects and why are they so successful? Ecology of individual insects. Environmental changes and disturbance. Response to abiotic condition.	**2**	**8**
Resource acquisition (resource quality, resource acceptability, resource availability). Resources allocation (resource budget, allocation of assimilated resource, efficiency of resource use).	**2**	**8**
Population ecology, Population systems, population dynamic, biogeography. Community ecology, community structure, community dynamics.	**2**	**8**
Ecosystem structure and function, herbivory, pollination, decomposition and pedogenesis. Insect regulators of ecosystem processes. Application and synthesis.	**2**	**8**
Introduction and framework for studying behavior. Social behavior and insect societies. Communication systems (visual, chemical, acoustic, tactile). Insects as prey: defenses against predators	**2**	**8**
Insects as predators and parasites. Plant-insect interactions. Navigation, dispersal, and habitat selection. Finding mates and courtship.	**2**	**8**
Diversity of insect mating systems. Pheromones and behavior.	**2**	**8**
Applying insect behavior to pest management. Using insect behavior to inspire human design.	**2**	**8**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the diversity of insect environments and their behavior.**
- **Describe how scientists are using our modern understanding of insect ecology and behavior to solve human problems.**
- **Describe methods employed to study insect behavior and be able to propose specific experiments to logically test hypotheses.**
- **Present information clearly in the form of verbal reports**
- **Communicate complex ideas and arguments in a clear, concise and effective manner**
- **Work effectively as an individual or part of a team**

- **Use conventional and electronic resources to collect, select and organize complex scientific information**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management**
- **Critically evaluate their personal performance both as an individual and within a team**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- Price PW; Denno RF; Eubanks MD; Finke DL; and Kaplan I (2011). Insect ecology: behavior, population, and communities. Cambridge University Press. (ISBN: 9780521834889 Haedback).
(2)- Timothy D. Schowalter (2006). Insect ecology and ecosystem approach. 3rd Ed. (ISBN: 978012381350).
(3)- Blomquist G and Vogt R (2003). Insect pheromone biochemistry and molecular biology: the biosynthesis and detection of pheromones and plant volatiles. Elsevier Academic Press (ISBN: 0121071510).
(4)- Speight MR; Hunter MD; and Watt AD (1999). Ecology of insects: concepts and application. Blackwell Science Ltd.
(5)- Price PW (1997). Insect ecology. 3rd Ed. John Wiely & Sons, Inc (ISBN: 047116845)
(6)- Beroza M (1970). Chemical controlling insect behavior. Academic Press Inc.

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Ecological entomology
(2)- Environmental Entomology
(3)- Journal of Insect Behavior
(4)- Journal of Insect Science
(5)- Journal of Vector Ecology
(6)- Water Research (Elsevier)
(7)- Water Science and Technology (IWA)
(8)- Aquatic Insects
(9)- International Journal of Tropical Insect Science
(10)- Zoosystema

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Invertebrates Conservation and Management
4013662-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

- Course title and code:
  Invertebrates Conservation and Management- 4013662-4

2. Credit hours 2 credit hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
MSc zoology

4. Name of faculty member responsible for the course
Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)

5. Level/year at which this course is offered: **Second year / Fourth semester**

6. Pre-requisites for this course (if any)
N/A

7. Co-requisites for this course (if any)
N/A

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

- **The course has been designed to foster freshwater and terrestrial invertebrate conservation and provide the knowledge and skills base for a range of careers in conservation and consultancy.**
- **It also help people currently working in conservation, consultancy, and land management who want to upgrade their professional qualifications**

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to invertebrates habitates	1	2
Distribution of invertebrates in various ecosystems	1	2
Invertebrate Taxonomy with Field study.	1	2
Conservation methods of invertebrates.	1	2
Biological diversity and its values	1	2
Threats to biological diversity: habitat destruction, exotic species	1	2
Conservation genetics and the population biology of threatened species	1	2
Ecological stress on Terrestrial Habitats	1	2
Managing threatened species in situ & ex situ.	1	2
Establishing and managing protected areas	1	2
Managing Freshwater and marine Habitats	1	2
Conservation of freshwater invertebrates and linkages between terrestrial and aquatic food webs	1	2
Social framework for the conservation of biodiversity	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Identify aquatic and terrestrial invertebrates to genus and use invertebrates to ask ecological or conservation questions.
- Understand the phylogeny, life histories, behaviors, trophic importance, adaptations to life in different ecosystems, and conservation significance of aquatic and terrestrial invertebrates.
- be familiar with methods for measuring invertebrate density, biomass, and diversity.
- be able to use invertebrate bio-assessment protocols to test for environmental impacts.
- Present information clearly in the form of verbal reports
- Communicate complex ideas and arguments in a clear, concise and effective manner
  Work effectively as an individual or part of a team
- Use conventional and electronic resources to collect, select and organize complex scientific information
- Be able to assimilate and synthesise data from multiple sources
  Demonstrate capacity for self-learning and independent thinking and to utilise problem solving skills
- Demonstrate effective communication skills in the form of student led group presentations.
  Demonstrate skills in working collegiately and effectively with others as a member of a team.
- Set priorities and link these with effective time management
  Critically evaluate their personal performance both as an individual and within a team

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- **CAFF (Conservation of Arctic Flora and Fauna). 2001. Arctic flora and fauna: status and conservation. Helsinki: Edita. 272 p.**
- **Pechenik, Jan A. 2015. Biology of the Invertebrates. 7th Edition. McGraw-Hill. ISBN: 9781308347639.**
- **Primack, R. B. 2010. Essentials of conservation biology, 5thEdition. Sinauer Associates, Inc. ISBN- 10: 0878936408**
- **Online resources:**
- **http://www.mongabay.com/conservation**
- **http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1523**

- List Essential References Materials (Journals, Reports, etc.)
- **ISJ - Invertebrate Survival Journal.**
- **Invertebrate Reproduction & Development**
- **African Invertebrates**
- **Journal of Crustacean Biology**

Other related journals

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Marine Ecology and Oceanography
4013666-4

Course Specifications

Institution **Umm Al-Qura University**	Date
College/Department **Faculty of Applied Science / Department of Biology**	

A. Course Identification and General Information

Course title and code: **Marine Ecology and Oceanography - 4013666-4**			
2. Credit hours 2 credit hours			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc zoology**			
4. Name of faculty member responsible for the course **Dr. Randa A. Elbassat (raelbassat@uqu.edu.sa)**			
5. Level/year at which this course is offered: **Second year / Fourth semester**			
6. Pre-requisites for this course (if any) **N/A**			
7. Co-requisites for this course (if any) **N/A**			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? **This course aims to study the biology and ecology of the marine realm, with a focus on offshore and deep-sea ecosystems, and the physical and chemical processes that shape them. Teaching uses both small and large research vessels, providing you with an unrivalled experience of open ocean marine biology.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
• Introduction to Marine Biology	1	2
• Methods in Marine Biology and Oceanography	1	2
• Ecology of Shallow Water Marine Habitats	1	2
• Waves, Tides and Coastal Dynamics	1	2
• Biological Oceanography	1	2
• Ecology and Conservation of Marine Vertebrates	1	2
• Marine Ecosystem Conservation	1	2
• fundamentals of fish anatomy and morphology and the role of meristic for species identification; methods of age determination, use of growth bands for growth estimates in different taxonomic groups	1	2
• Role of benthos and fish in marine food webs; species inventory, biodiversity, community structure, trophic interactions	1	2
• Methods for sampling and analyzing benthos and fish	1	2
• Role of phyto- and zooplankton in marine food webs.	1	2
• Sampling methods, qualitative and quantitative analyses of plankton samples.	1	2
• Introduction to the production of aquatic organisms under controlled conditions.	2	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28	2				30
Credit	2	2				2

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- Understand the complexity of managing marine living resources.
- Identify different life-stages of fish.
- Understand the functional morphology of aquatic living organisms.
- Identify fish species according to morphological characters.
- Estimate growth rates of plankton and fish.
- Develop an understanding of the role of aquaculture for the sustainable production of fish.
- Communicate complex ideas and arguments in a clear, concise and effective manner
- Work effectively as an individual or part of a team
- Use conventional and electronic resources to collect, select and organize complex scientific information

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

2. List Required Textbooks **Lalli & Parsons: Biological oceanography: an introduction.** **Miller: Biological oceanography.** **Valiela: Marine ecological processes.** **Belgrano et al.: Aquatic food webs.** **Stenseth et al.: Marine ecosystems and climate variation.** **Hart & Reynolds: Handbook of fish biology and fisheries I+II.** **Jennings: Marine fisheries ecology.** **Laevasru: Marine climate, weather and fisheries.** **Levinton: Marine biology: function, biodiversity, ecology.** **Lucas & Southgate: Aquaculture, farming aquatic animals and plants**
• List Essential References Materials (Journals, Reports, etc.) • **Canadian Journal of Fisheries and Aquatic Sciences.** • **Fisheries Oceanography ·** • **Fisheries Research.** • **Journal of Experimental Marine Biology and Ecology** • **Other related journals**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**

3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: **Dr Randa A. El-Bassat**

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Medical and Veterinary Entomology
4013669-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Medical and Veterinary Entomology (4013669-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Doaa S. Mohamed (dsshehata@uqu.edu.sa)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding to insects, insect-borne diseases, and other associated problems that affect human, animals and public health.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **The course structure is design to provide an overall coverage of the pests that have and continue to plague humans and animals. This course will explore the arthropods of importance in human health and those that impact livestock production, companion animals and wildlife through direct attack and disease transmission. It will include information on their biology, ecology, potential for disease transmission and management. Students will learn to identify the common pests and the principles of epidemiology and pest management. The factors involved in the epidemiology of vector-borne diseases, host, parasite, vector and reservoir, will be stressed, as this is the recurrent theme in medical entomology.**

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction, Impact of arthropods on human and animal health	1	4
Epidemiology, Vector-borne pathogens, Control, economic damage and eradication, Spiders, scorpions, Hymenoptera and minor orders (Lepidoptera, cockroaches, and beetles).	3	12
True bugs – Chagas Disease, Lice – Livestock and Poultry, Lice – A human problem as well, Fleas – Plague Pandemics, Black Flies, Sand flies and Biting midges (Leishmania).	3	12
Mosquitoes –Importance and Ecology. Mosquitoes – Malaria and Dengue, Mosquitoes –Yellow Fever and Filariasis. Mosquitoes and the US disease situation – West Nile virus, other Encephalitides virus' and disease developmental models..	3	12
Horse flies, Deer Flies, Soldier Flies. Muscoid Flies–Importance, Ecology & Role in food-borne illness. Muscoid Flies – house, horn, stable and face. Confinement livestock	3	12
flies, Tsetse and Sheep Ked. Myiasis, bot flies, and others	2	8
Mites and Ticks, Ticks and Humans, Ticks and Livestock, Mites & Ticks and Disease	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Define and compare the primary vectors of medical and veterinary entomology.**
- **Identify the major pests of veterinary entomology and provide pest management solutions.**
- **Explain the reasons underlying the major diseases outbreaks in human history, and relate to why these outbreaks occasionally occur in today's modern world.**
- **Explain and support the principles of Integrated Pest Management in livestock systems.**
- **Compare and contrast the life-history strategies used by major vector and pest species of medical and veterinary importance.**
- **Discuss the principles of vector-borne epidemiology**
- **Assess the likelihood of new approaches in solving humanities vector-borne pathogen challenges.**
- **Present information clearly in the form of verbal reports**
- **Communicate complex ideas and arguments in a clear, concise and effective manner**
- **Work effectively as an individual or part of a team**
- **Use conventional and electronic resources to collect, select and organize complex scientific information**
- **Be able to assimilate and synthesis data from multiple sources**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management**
- **Critically evaluate their personal performance both as an individual and within a team**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- Cameron M. and Otranto D. (2015). Medical and Veterinary Entomology. Wiley Online Library (ISBN: 13652915).
(2)- Gary R. Mullen and Lance A. Purden (2009). Medical and Veterinary Entomology.2nd Ed. Elsevier (ISBN: 978012372500-4).
(3)- Goddard (2000). Infectious diseases and arthropods. Wiley-Blackwell (ISBN: 9789786937250).
(4)- Eldridge BF and Edman JD (2000). Medical entomology: text book on public health and veterinary problems caused by athropods. Wiley-Kluwer (ISBN: 9780792363200).
(5)- Kettle DS (1995). Medical and Veterinary Entomology. CABI (ISBN: 9780851989693).

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:

(1)- Medical and Veterinary Entomology.
(2)- Journal of Medical Entomology.
(3)- Journal of Insect Pathology.
(4)- Journal of Invertebrate Pathology.
(5)- International Journal of Acarology.
(6)- International Journal of Fresh Water Entomology.
(7)- International Journal of Mosquito research.
(8)- Journal of Vector Ecology.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Mutagenesis and over expression of enzymes
4013675-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Mutagenesis and over expression of enzymes (4013675-4)**			
2. Credit hours: **4 C. H.**			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**			
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**			
5. Level/year at which this course is offered			
6. Pre-requisites for this course (if any)			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	
Comments:			

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide theoretical understanding of essential topics of Mutagenesis and over expression of enzymes.When students have finished this course, they will be able to understand the basis and mechanisms of DNA repair process and regulation of genetic toxicology**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
- Course introduction	1	4
-The gene in molecular terms - The gene pre-Mendel to Mendel -The gene as a unit of function -The gene as a unit of mutation - The rII cistron of phage T4 -The gene and the operon -Allelic interactions	6	24
Genes & chromosome Chromatin and chromosome structure Chromosome variation I Chromosome variation II Chromosome function	2	8
Linkage, gene order, linearity, crossing-over, recombination -Mechanisms of crossing over - gene conversion -Genetic manipulation by recombination	4	16
Discussion paper on genes, mutations & genetic approaches Discussion paper on recombination Discussion paper on genomes and chromosomes	3	12

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Mutagenesis and over expression of enzymes is an upper level course. This course will provide students with a basic understanding of Mutagenesis mechanisms with a specific focus on DNA repair. This course will discuss our current understanding of mechanisms of mutagenesis and DNA repair in both prokaryotes and eukaryotes. The treatment will include both an overview of some of the classical experiments that have guided our understanding of the field, and a presentation of recent developments in these areas. Over the past 10 years several breakthroughs in our understanding of mutation and DNA repair processes have influenced our understanding of other cellular processes and our understanding of the molecular basis for cancer and several hereditary disorders. The course will discuss some of these issues. It will also attempt to provide some insight into the regulatory of genetic toxicology.

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

At end of this course, students should be able to:

-To familiarize basic knowledge of the molecular mechanisms in gene expression and regulation
- Understand mechanisms of crossing over - gene conversion
- Describe chromosome variation and gene crossing over
- Reading and interpreting scientific literature in mutation, genetic toxicity and recombination.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

-Watson *et. al. Molecular Biology of the Gene* ed. 5 –

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:
Genome-Wide Insertional Mutagenesis of Arabidopsis thaliana .José M Alonso. et al. Science 301, 653 (2003); www.sciencemag.org

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of class room is suitable concerning the number of enrolled students and air conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Class rooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Neural stem cells

4013684-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Neural stem cells, 4013684-4**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Athary Felemban (aamfelemban@uqu.edu.sa)**
5. Level/year at which this course is offered: **2nd year/ Level 4**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Main campus**
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	**100 %**
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The objective of this course is to introduce the neural stem cells. Identification and specification of neural stem cells. Finally, explain the isolation and cultural of neural stem cells**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **Neural stem cells exist not only in the developing mammalian nervous system but also in the adult nervous system of all mammalian organisms. Neural stem cells can also be derived from more primitive embryonic stem cells. The location of the adult stem cells and the brain and spinal cord regions to which their progeny migrate in order to differentiate remain unresolved, although the number of viable locations is limited in the adult.**

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction	1	4
The central nervous system	2	4
Neural stem cells in mammalian development	3	4
Identification of neural stem cells; Neural Stem Cell (NSCs), Neural Progenitor Cell, and Neural Precursor Cells (NPCs)	4	4
The function of neural stem cells in vivo	5	4
Neural stem cells in the developing brain	6	4
The nature and origin of the adult neural stem cell in Vivo	7	4
Subventricular zone in the adult mammalian brain	8	4
The central canal region in spinal cord	9	4
Stem cell proliferation and migration in adult	10	4
Neural induction and differentiation of pluripotent stem cells	11	4
Neural stem cell culture systems	12	4
Isolation strategies for neural stem cells	13	4
Regenerative therapy of the CNS	14	4
Brain tumor stem cells	15	4
Neural stem cells in the developing spinal cord injury and repair	16	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the Neural stem cells in mammalian development.**
- **Described the Isolation strategies for neural stem cells.**
- **Explain the regenerative therapy of the CNS.**
- **Present information clearly in the form of verbal reports/ seminar or poster presentation.**
- **Communicate complex ideas and arguments in a clear, concise and effective manner.**
- **Work effectively as an individual or part of a team.**
- **Use conventional and electronic resources to collect, select and organize complex scientific information.**
- **Be able to assimilate and synthesis data from multiple sources.**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem-solving skills.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management.**
- **Critically evaluate their personal performance both as an individual and within a team.**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.
Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

(1)- Bottenstein, J.E., 2003. Neural stem cell (Development and Transplantion), Springer.
(2)- Ashok, K.S., 2015. Neural Stem Cells in Health and Disease, World Scientific Publishing Co Inc

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals:
(1)- Nature (Nature Publishing Group)
(2)-Cell (Science Direct)
(3)- Stem Cell (Wiley)
(4)- Developmental (The Company of Biologists)
(5)- Journals of Neuroscience (Society for Neuroscience)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)

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

(1)- Class room is already provided with data show
(2)- The area of classroom is suitable concerning the number of enrolled students (could accommodate up to 50 students) and air-conditioned.

2. Computing resources (AV, data show, Smart Board, software, etc.)

(1)- Classrooms are equipped with data show.
(2)- A computer lab is required and connected to the network for students to gather their data and study materials

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

A student feedback system will periodically be administered periodically to address the student thoughts, reactions and concerns to a particular module/s through and interactive discussions between the course instructor and the

students.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Neuroscience
4013682-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Neuroscience, 4013682-4**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Athary Felemban (aamfelemban@uqu.edu.sa)**
5. Level/year at which this course is offered: **2nd year/ Level 4**
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Main campus**
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	**100 %**
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **This course covers in depth the neuroanatomy and neurophysiology of nervous system. In addition, Identification of location, structure and function of center nervous system (CNS) and associated pathways.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **Neuroscience, also known as Neural Science, is the study of the organization of the nervous system and the development of nervous system. Indeed there are of two major classes of cells in the nervous system: the neuroglia and neurons. The neurotransmitters, receptor and their pathway. Also, the importance role for visual system in mammalian. Organization of the cerebellum and their function.**

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction of Neuroscience	1	4
Structure and function of neurons in brain	2	4
Structure and function of neurons in spinal cord	3	4
Neural development: Development of Brain and Spinal cord	4	4
The adult neurogenesis and the cells of nervous system	5	4
The cells of the nervous system I: Neurons	6	4
The cells of the nervous system II: Neuroglial cells	7	4
Ion channels	8	4
The neuromuscular junction and synapses	9	4
Neurotransmitters and synaptic function	10	4
The organization of the cerebral cortex	11	4
The visual system (Eye, and retina)	12	4
Sensory system: receptors and pathways	13	4
Spinal cord motor organization	14	4
Thalamus	15	4
Cerebellum	16	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	64					64
Credit	4					4

3. Additional private study/learning hours expected for students per week. [ ]

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will have or be able to:

- **Understand the basic neuroscience mechanisms.**
- **Identify the major structures of the nervous system and distinguish the primary function(s) of these major structures.**
- **Identify and differentiate types of neural cells.**
- **Present information clearly in the form of verbal reports/ seminar or poster presentation.**
- **Communicate complex ideas and arguments in a clear, concise and effective manner.**
- **Work effectively as an individual or part of a team.**
- **Use conventional and electronic resources to collect, select and organize complex scientific information.**
- **Be able to assimilate and synthesis data from multiple sources.**
- **Demonstrate capacity for self-learning and independent thinking and to utilize problem solving skills.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working collegiately and effectively with others as a member of a team.**
- **Set priorities and link these with effective time management.**
- **Critically evaluate their personal performance both as an individual and within a team.**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Paper presentation (seminar)		30%
2	Short essay		20%
3	Short written exam		10%
4	Long literature review		40%
5	TOTAL		100%

D. Student Academic Counseling and Support

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) **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.** **Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks **(1)- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., Walter, P., Molecular Biology of the cell 4th edition. ISBN-13: 978-0815332183** **(2)- Barker, R.A., Barasi, S., Neal, M.J., 2007. Neuroscience at a glance, 3th edition. Blackwell Publishing.** **(3)- Fitzpatrick, D., Purves, D., Augustin G.J., 2001. Neuroscience, 2th edition. (ISBN: 9780878937424).** **(4)-Kandel, E.R., Schwartz, J.H., Jessll, T.M., 2000. Principles of Neural science, 4th edition. McGraw-Hill, New York.**
2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: **(1)- Nature (Nature Publishing Group)** **(2)- Developmental (The Company of Biologists)** **(3)- Journals of Neuroscience (Society for Neuroscience)** **(4)- Developmental Biology (Elsevier)** **(5)- PLos ONE (PLOS)**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of classroom is suitable concerning the number of enrolled students (could accommodate up to 100 students) and air-conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Classrooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **A student feedback system will periodically be administered periodically to address the student thoughts, reactions and concerns to a particular module/s through and interactive discussions between the course instructor and the students.**

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **(1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Organs and Tissue Culture
4013656-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: Organs and Tissue Culture 4013656-4
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course: **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Alazahir campus- Girls section**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The main goal of the course is to introduce tissue and organ cultures. Types of different cultures medias. Cultivation of the fetal and adult tissues**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Introduction to the organ and tissue cultures	**1**	**4**
Intensive study in the scientific terminology of tissue culture	**1**	**4**
Types of different tissue cultures medias	**1**	**2**
Cultivation of early embryonic cells or fetal tissue cultures	**1**	**2**
Cultivation of adult tissues.	**1**	**4**
Cultivation of cancer cells	**1**	**4**
Cultivation of organ cells	**1**	**4**

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	28					28
Credit	4					4

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- **Understand the tissue and organ cultures.**
- **Identify and differentiate types of different cultures medias.**
- **Demonstrate cultivation of fetal and adult tissues**
- **Identify cancer cell cultures.**
- **Write information clearly in weekly reports**
- **Visit libraries and make notes of the upcoming lectures.**
- **Work effectively as an individual or part of a team**
- **Use scientific resources to collect the information.**
- **Be able to analyses data and compare it with other studies.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working effectively with others as a member of a team.**

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks

- **Sudha Gangal, (2010): Principles and Practice of Animal Tissue Culture (Second Edition), Universities press.**
- **Mather, Jennie P., Roberts, Penelope E.(1998): Introduction to Cell and Tissue Culture. Theory and Technique. Introductory Cell and Molecular Biology Techniques. Springer.**
- **Willmer, E.N.(2013) Cells and Tissues in Culture, Methods, Biology and Physiology: Volume 3. Elsevier.**

2. List Essential References Materials (Journals, Reports, etc.)

High Impact Journals: **(1)- Journal of Biomimetics Biomaterials and Tissue Engineering** **(2)- Journal of Tissue Science & Engineering** **(3)- Journal of Stem Cell Research & Therapy** **(4)- Advances in Bioscience and Biotechnology**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Recombinant DNA Technology
4013676-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Recombinant DNA Technology (4013676-4)**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc Zoology**
4. Name of faculty member responsible for the course **Dr. Rasha Ali Ebiya (Rasha_Ali_511@ yahoo.com)**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The major objective of the course is to provide a broad knowledge about Recombinant DNA technology. At the end of this course student should be able to:** **-Demonstrate the basic techniques involved in recombinant DNA manipulations including DNA restriction, ligation, transformation and selection of recombinant plasmid.** **- Demonstrate the principle of PCR and its applications**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: **It is designed to give a good background in Recombinant DNA technology. When students have finished this course, they will be able to understand the basis of Recombinant DNA technology. This course covers advanced topics that include:** **- knowledge of the replication and expression of genetic information. -Recombinant DNA technology: identify, isolate, amplify, analyze and express virtually any genetic material, whether it is DNA or RNA.** **- Characterization of genetic polymorphisms in a gene by using the polymerase chain reaction(PCR).**

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
PART 1: The Basic Principles of Gene Cloning and DNA Analysis: - Introduction, History, The advent and importance of gene cloning and the polymerase chain reaction, -Vectors for Gene Cloning - Purification of DNA from Living Cells, Manipulation of Purified DNA Restriction Analysis, Agarose Gel Electrophoresis	**4**	**16**
PART 2: Vectors for Cloning -Cloning Vectors for E. coli, λ and other high capacity vectors -Cloning Vectors for Eukaryotes -Genomics & cDNA Libraries	**4**	**16**
PART 3: Applications and Techniques of Gene Cloning Polymerase Chain Reaction & qPCR, Electrophoresis & Blotting Techniques, Site- Directed Mutagenesis, DNA Sequencing, Reporter Gene Assays, DNA-Protein Interaction Assays, Protein-Protein Interaction Assays, DNA Fingerprinting.	**5**	**20**
Bioinformatics	**1**	**4**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**64**					**64**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

At end of this course, students should be able to:

1. Describe the patterns of inheritance and explain the principles
2. Explain the roles of epigenetics on the inheritance
3. Select the comparative genomics as a tool to gain knowledge in functional genetics and genomics
4. Describe the gene regulations in prokaryotic and eukaryotic systems
5. Conceptualize the knowledge of system biology and use it to gain an overview of particular research topics

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

- **Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.**
- **Office hours: 6 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.**

E Learning Resources

1. List Required Textbooks

- **Gene Cloning and DNA Analysis: An Introduction, 6th Edition, T. A. Brown, Wiley-Blackw**
- **Principles of Gene Manipulation & Genomics – 7th Edition – Sandy B.Primrose, Richard Twyman–Blackwell**

2. List Essential References Materials (Journals, Reports, etc.) High Impact Journals: ----------
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) ----------
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. ----------
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. ----------

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show** **(2)- The area of class room is suitable concerning the number of enrolled students and air conditioned.**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific movies.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) **After the agreement of Department and Faculty administrations; it might include:** **(1)- Random check of students exam papers / assignments by external examiner** **(2)- Random check of students exam papers / assignments by internal examiner**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. **A departmental review committee will look after the arrangement periodically after taking feedback from students and in the light of new development in the subject.**

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications

Reproduction Physiology
4013661-4

Course Specifications

Institution: **Umm Al-Qura University**
College/Department: **Faculty of Applied Science / Department of Biology**

A. Course Identification and General Information

1. Course title and code: **Reproduction Physiology 4013661-4**
2. Credit hours: **4 C. H.**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) **MSc program in Zoology**
4. Name of faculty member responsible for the course **Prof. Dr. Hawazen Ahmad Lamfon**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any)
7. Co-requisites for this course (if any)
8. Location if not on main campus **Alazahir campus- Girls section**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course? **The main goal of the course is to introduce an advance understanding of the reproductive system, reproductive cycle and reproductive hormones, puberty, Biochemistry of the oestrous cycle, menstruation**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	**No. of Weeks**	**Contact hours**
Reproductive system in mammles	**1**	**2**
Endocrinology of reproduction: the hormones of the pituitary gland, the hormones of the thyroid gland.	**1**	**4**
Interrelation of the pituitary gland and ovary	**1**	**2**
Interrelation of the hypothalamus and the pituitary gland.	**1**	**2**
The hormones of reproduction: releasing factors, trophic and peptide hormones, gonadal hormones, prostaglandins, mechanism of hormone action.	**1**	**4**
Biochemistry of the oestrous cycle, menstruation, ovulation and fertilization.	**1**	**4**
Hormonal control of pregnancy. Function of the placenta.	**1**	**4**
Androgens and the hormonal control of spermatogenesis.	**1**	**4**
Lactation. Hormonal control of fertility. Sterility. Birth control	**1**	**4**

2. Course components (total contact hours and credits per semester):						
	Lecture	**Tutorial**	**Laboratory or Studio**	**Practical**	**Other**	**Total**
Contact Hours	**30**					**30**
Credit	**4**					**4**

3. Additional private study/learning hours expected for students per week. ☐

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On completion of this course students will be able to:

- **Understand the reproductive system in mammals.**
- **Identify and differentiate types and functions of the gonads hormones**
- **Demonstrate the biochemistry of the estrous cycle, menstruation, ovulation and fertilization.**
- **Illustrate the hormonal control of pregnancy, function of the placenta.**
- **Identify androgens and the hormonal control of spermatogenesis.**
- **Understand lactation, hormonal control of fertility. Sterility and birth control**
- **Write information clearly in weekly reports**
- **Visit libraries and make notes of the upcoming lectures.**
- **Work effectively as an individual or part of a team**
- **Use scientific resources to collect the information.**
- **Be able to analyses data and compare it with other studies.**
- **Demonstrate effective communication skills in the form of student led group presentations.**
- **Demonstrate skills in working effectively with others as a member of a team.**

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Paper presentation (seminar)**		**30%**
2	**Short essay**		**20%**
3	**Short written exam**		**10%**
4	**Long literature review**		**40%**
5	**TOTAL**		**100%**

D. Student Academic Counseling and Support

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)

Academic teaching staff will be available to meet individual students for consultation and academic advice at their private offices at the times advised.

Office hours: 10 hrs per week; each semester. Time will varies each semester based on academic schedule for each teaching staff.

E Learning Resources

1. List Required Textbooks 1. **DI Lebovic, JD Gordon, RN Taylor (2005): Reproductive Endocrinology and Infertility: Handbook for Clinicians. Scrub Hill Press** 2. **Nussey S, Whitehead S(2001) Endocrinology: An Integrated Approach Oxford: BIOS Scientific Publishers; 2001.** 3. **Greenspan, F.S, Strewler, G.J (1997): Basic &Clinical Endocrinology, Fifth edi, Appleton& Lange.** 4. **Brook, C. and Marshall, N. (1996). Essential Endocrinology, Blackwell Science UK.** 5. - **Braverman, L.E. (2003): Diseases of the thyroid, Human Press, Totowa, New Jersey.**
2. List Essential References Materials (Journals, Reports, etc.) **High Impact Journals:** **(1)- International journal of endocrinology** **(2)- Endocrinology (Oxford academic)** **(3)- Endocrinology & Metabolic Syndrome** **(4)- Frontiers in endocrinology, Experimental endocrinology** **(5)- European Journal of Endocrinology**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

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.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **(1)- Class room is already provided with data show**
2. Computing resources (AV, data show, Smart Board, software, etc.) **(1)- Class rooms are equipped with data show.** **(2)- A computer lab is required and connected to the network for students to gather their data and study materials**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching **(1)- Questionnaires / students opinion survey** **(2)- Open discussion in the class room at the end of the lectures or during individual student/staff meeting**

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department **1)- Revision of student answer papers / assignments by another staff member.** **(2)- Analysis the grades of students.**
3 Processes for Improvement of Teaching **(1)- Preparing the course as PPT.** **(2)- Using scientific youtubes.** **(3)- Coupling the theoretical part with laboratory part** **(4)- Periodical revision of course content.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____ Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____ Date Received: _____

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	**Understanding facts**	**1. Lecture, support readings, group discussions, writing reports, preparing research papers. 2. Conducting individual tasks, practical training, field training, Talks, 3. Activities and homework**	**(1)- written MCQ's exams (2)- Paper oral presentation (3)- Papers based essays (4)- Extended literature review**
1.2	**Understanding and applying theories and concepts**		
1.3	**Understanding procedures**		
2.0	**Cognitive Skills**		
2.1	**Applying skills / procedures of theoretical and concepts learned**	**1. Lecture, support readings, group discussions, writing reports, preparing research papers. 2. Conducting individual tasks, practical training, field training, Talks, 3. Activities and homework**	**(1)- written MCQ's exams (2)- Paper oral presentation (3)- Papers based essays (4)- Extended literature review**
2.2	**Critical thinking**		
2.3	**Creative thinking**		
2.4	**Problem solving**		
3.0	**Interpersonal Skills & Responsibility**		
3.1	**Responsibility of own learning**	**1. Lecture, support readings, group discussions, writing reports, preparing research papers. 2. Conducting individual tasks, practical training, field training, Talks, 3. Activities and homework**	**(1)- written MCQ's exams (2)- Paper oral presentation (3)- Papers based essays (4)- Extended literature review**
3.2	**Group participation and leadership**		
3.3	**Act responsibly-personal and professional situation**		
3.4	**Ethical standards of behavior**		
4.0	**Communication, Information Technology, Numerical**		
4.1	**Oral and written communication**	**1. Lecture, support readings, group discussions, writing reports, preparing research papers. 2. Conducting individual tasks, practical training, field training, Talks, 3. Activities and homework**	**(1)- written MCQ's exams (2)- Paper oral presentation (3)- Papers based essays (4)- Extended literature review**
4.2	**Use of IT**		
4.3	**Basic math and statistics**		
5.0	**Psychomotor**		
5.1	**Carrying out practical experiments in field and laboratory**	**Attendance and participating in all practical research project and supervising students throughout the lab experiments**	**(1)- Work on research project leading to write a thesis or a dissertation**
5.2	**Awareness of laboratory safety issues and experimental ethics**		