هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**Embryology**
Course Code:	**452-ZOO**
Program:	**Biology**
Department:	**Biology**
College:	**Science**
Institution:	**Jazan University**

Table of Contents

A. Course Identification

1. Credit hours: 2Hours
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: Level 8 – 4th Year
4. Pre-requisites for this course (if any)**: Immunology 354-Bio**
5. Co-requisites for this course (if any)**: None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	١٠	٦٦,٦٧
2	**Blended**	٢	١٣,٣٣
3	**E-learning**	٣	٢٠
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	١٥
2	**Laboratory/Studio**	٣٠
3	**Tutorial**	-
4	**Others** (specify)	-
	Total	**45**

B. Course Objectives and Learning Outcomes

1. Course Description

Course Title	Course No.	Credit Units			Year	Level	Pre-Requisite
		Theoretical	Practical	Total			
EMBRYOLOGY	453-Bio	1	1	2	4th	8th	354-Bio

2. Course Main Objective

Our successful students after finishing this course will be able:

- To understand the embryological development in Quran and Sunnah.
- To state the historical background of embryology and enumerate the different historical development theories.
- Define types of cell growth. And compare between growth and differentiation.
- To devote an introduction to embryology, gametogenesis, fertilization, and the development of embryo from zygote to neural tube formation.

- To address the developmental events during all stages of prenatal life.
- To emphasize the human developmental stages and the differences between it and different examples of different vertebrate phyla.
- To examine teratological defects of developing embryos.
- To examine the development of some organ systems, as well as a look into the development of sensory organs.
- To study the stem cells, different types, and its role in regenerative medicine. types of artificial insemination, collection of sperms and eggs, artificial insemination. Also *in vitro* fertilization (ICSI) in humans and test tube babies. embryonic membranes and twins.
- To understand the concept of parthenogensis reproduction and artificial parthenogensis.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Display a broad understanding and critical view of the principal, theories, mechanisms, functions, concepts and terminology of embryology.	K1
1.2	Demonstrate significant knowledge in a range of different perspectives or schools of thought that underpin the principal, concepts, theories, mechanisms, functions, practices, and literature of development.	K2
2	**Skills :**	
2.1	Explain aspects, theories, mechanisms, functions, and processes relevant to embryology.	S1
2.2	Compare different structures, mechanisms, functions, and features related to embryology	S2
3	**Values:**	
3.1	Conduct independent research and practical methodologies in biological laboratories, either individually or in groups using IT resources considering risk assessment and lab safety,	C2

C. Course Content

No	List of Topics	Contact Hours
1	Introduction in Embryology	1
2	Spermatogenesis (Anatomy of Testis, Spermatogenesis, The Sperm)	١
3	Oogenesis (Anatomy of ovary, Development of Follicles, Fertilization)	2
4	Animal Development (Cleavage Stage , Gastrula , Differentiation)	2
5	Organogenesis and Growth	1
6	Early Development in Amphioxus , Frog, Chicken .	2
٧	Stem Cells & Human development	1
٨	Twins (Identical Twins , Dizygotic Twins)	1
٩	Artificial insemination	1
١٠	Artificial development &Parthenogenesis	1
١١	Teratology	1
Total		١٤

D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Display a broad understanding and critical view of the principal, theories, mechanisms, functions, concepts and terminology of embryology.	Lectures, Lab work	Quizzes, Short Answer Question (SAQ), MCQs
1.2	Demonstrate significant knowledge in a range of different perspectives or schools of thought that underpin the principal, concepts, theories, mechanisms, functions, practices, and literature of development.	Lectures, Lab work	Quizzes, SAQ, MCQ,
2.0	**Skills**		
2.1	Explain aspects, theories, mechanisms, functions, and processes relevant to embryology.	Lectures, Lab work,	Quizzes, SAQ
2.2	Compare different structures, mechanisms, functions, and features related to embryology	Lectures, Lab work, Group Discussion	Quizzes, SAQ, Lab work assessment
3.0	**Values**		
3.1	Conduct independent research and practical methodologies in biological laboratories, either individually or in groups using IT resources considering risk assessment and lab safety,	Group Discussion, Lab work, independent research	Lab work assessment, Assignments,

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Written assignment	3	٣
2	Group assignment	4	2
3	Theoretical quiz	5	5
4	Mid-term exam	7	10
5	Practical Mid-term exam	9	10
6	Practical assignment	11	٥
7	Final practical exam	13	15
8	Final Exam	15	50

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

E. Student Academic Counseling and Support

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

10 Office hours/Faculty/week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Handbook of descerptive and experimental embryology. علم الأجنة الوصفى والتجريبي للدكتور صالح عبدالعزيز كريم – جامعة الملك عبدالعزيز	
Essential References Materials	➢ Hickman C.P., Roberts L.S, Larson A., I'Anson H., Eisenhour D.J. (2006) **Integrated Principles of Zoology**. McGraw-Hill Higher, New York. ➢ **Experimental Embryology:** by Ahmad Rashed Al Himaidi and Saleh Abdulaziz Karim / King Saud University Press,2008. ➢ **Developmental Biology** "by Scott F. Gilbert 2003 7th ed .Sinauer Association Inc. Sunderland Massachusetts's. ➢ **Introduction to descriptive and experimental embryology,** by saleh abdelaziz koraim 1990.	
Electronic Materials	www. Youtube.com, www. Wikipedia.com, developmental biology, Embryology	
Other Learning Materials	----	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1 Lecture room(s) for groups of 50 students. 1 Laboratory for group of 25 students.
Technology Resources (AV, data show, Smart Board, software, etc.)	AV, data show, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Light microscopes, glassware, chemicals, consumables, dissection tools.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty	Direct (Questionnaire)
Effectiveness of assessment	Peer Reviewer	Direct (Cross Check marking)
Extent of achievement of course learning outcomes	Program Leader	Indirect (QA Committee)
Quality of learning resources	QA. Committee	Indirect (Benchmarking)

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

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	