STANDARD COURSE OUTLINE

Annex 3

Hashemite University		Developmental Biology (2401041362)
Faculty of Science		**Pre-requisite: Vertebrates (1801041264)**
Department of Biology and Biotechnology	**Course Syllabus**	

Course Information	
Lecture's Time	Sun, Tue: 8:30-9:30 a.m.
Lecture Room	Biology Building Room 241
Instructor	Prof. Lubna Tahtamouni
Office Location	Biology Building 110
Office Hours	Sun, Tue: 1-2 p.m. or by appointment
Text Book Developmental Biology, 2016; Scott Gilbert and Michael Barresi; 11th Edition; Oxford University Press.	
References(s)	Principles of Development, 2019; Lewis Wolpert, et al.; 6th Edition; Oxford University Press

Grading Policy:

Theory		**Practical**	
1st Exam	15%	Quizzes	10 %
2nd Exam	15%	Midterm	40%
Other	30%	Reports	10%
Final Exam	40%	Final Exam	40%

Course Objectives

Developmental Biology is designed to provide an overview of the major features of early embryonic development in animals focusing on Gametogenesis, Fertilization and Cleavage, and the mechanisms that underlie them. **We'll focus on several major aspects of developmental biology:**

1) How do developmental biologists think about embryos? We'll look at major big ideas in developmental biology, and how they guide modern experimental approaches to studying development.

2) How do developmental biologists study embryos? We'll look at molecular and cellular techniques that developmental biologists use, as well as basic properties of cells that we'll need to know for the rest of the semester.

3) How do genes control development? We'll look at how the regulation of specific genes influences the ways in which parts of the embryo become different. We'll look at how are specific genes are turned "on" and "off" in different parts of an embryo, and why that's important for building an embryo.

4) How does an animal embryo arise from a fertilized egg? We'll look at how sperm and egg are produced, how they unite, and what the consequences are for the onset of embryonic development. We'll look at how the basic organization of the embryo arises from the fertilized egg. We'll study gastrulation: how the primary axes of the body are constructed.

5) How does developmental biology impact society? Although this is a science course, the science we study has many implications for society. At several points throughout the semester, we'll stop briefly to examine the knotty problems created by modern developmental biology. Our goal in stopping to think about the greater context in which science takes place is to help us to be better thinkers!!

Teaching and Learning Methods

Lectures

PowerPoint Slides

Textbook

Course Contents

Week	Topic
1	**Orientation**
2	**Introduction to developmental biology**
3	**Genomic equivalence & cell-cell communication in development**
4	**Gametogenesis: Spermatogenesis**
5	**Gametogenesis: Oogenesis**
6	**Sex determination**
7	**Fertilization**
8	**Cleavage**

9	**Early development in sea urchin**
10	**Early development in frog**
11	**Chick embryo development I**
12	**Chick embryo development II**
13	**Mammalian embryo development**
14	**Infertility and assisted reproduction**
15	**Review**
16	Final Examination