

Jordan University of Science and Technology
Faculty of Science and Arts
Department of Biotechnology and Genetic Engineering
Semester 2007

Course Information	
Course Title	Developmental Biology (Embryology)
Course Number	B. 411
Prerequisites	B.102
Course Website	
Instructor	Professor Ahmed Elbetieha
Office Location	Deanship/Faculty of Science and Arts
Office Phone	23480
Office Hours	Monday, Wed. from 11-12:30
E-mail	betieha@just.edu.jo
Teaching Assistant	None
Course Description	
The course will focus on studying the developmental stages in different organisms as Amphibians, Sea Urchins, <i>Drosophila</i> and human. Current approaches in developmental biology including genetic engineering and molecular biology will be discussed.	

Text Book	
Title	Analysis of Biological Development
Author(s)	Kalthoff, K.
Publisher	McGraw Hill
Year	2001
Edition	Second
Book Website	
References	

Assessment Policy		
Assessment Type	Expected Due Date	Weight
First Exam	5 th week of the semester	30%
Second Exam	11 th week of the semester	30%
Final Exam	To be announced by the university	40%
Assignments		

Course Objectives		Weights
1. To Understand the different developmental periods in different organisms		20%
2. To comprehend the different stages of animal development starting from gametogenesis , through cleavage, gastrulation and morphogenesis		25%
3. To understand cell fate, potency and determination		15%
4. To comprehend the principle of genomic equivalence and differential gene expression		20%
5. To appreciate the role of localized cytoplasmic determinants in cell determination		10%

6. To comprehend the molecular basis of development	10%
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Teaching & Learning Methods
1. Lecturing and using the overhead projector as a tool of teaching

Learning Outcomes: Upon successful completion of this course, students will be able to		
Related Objective(s)		Reference(s)
1,2	Recognize the main features distinguishing each stage of development	Chapter 1,,3,4,5,10,12 and Handouts
3	Know the differences between cell fate, potency and determination	6
4,5	Comprehend the principle of genomic equivalence and the role of cytoplasmic determinants in development	7
6	Appreciate the molecular basis of development	1-14

Useful Resources

Course Content		
Week	Topics	Chapter in Text (handouts)
1	Introduction	
2	Overview of development	1
3	Gametogenesis	3
4	Fertilization	4
5	Cleavage	5
6	Cell fate, potency and determination	6
7	Genomic equivalence and the cytoplasmic determinants	7
8	Localized cytoplasmic determinants	8
9	Gastrulation	10

10	Neurulation and axis induction	12
11	Ectoderm organs	13
12	Endodermal and mesodermal organs	14
13 and 14	Selected topics	

Additional Notes	
Assignments	Reading textbook chapters
Exams	The first and second exams 60% (30%) each and 40% for the final
Cheating	Prohibited by the university regulations
Attendance	Very important according the university regulation
Workload	
Graded Exams	
Participation	
Laboratory	
Projects	

Introduction The stages of biological development are not clearly defined despite the fact that they have been used to refer to concepts such as adolescence and aging. This study aimed to (1) propose and test a framework to search for stages of representative components and determine stages of stability and transition, (2) identify stages of biological development based on health questionnaire and biomarker data, and (3) interpret the major trajectories in a health and biomarker database. Methods This study analyzed the data on the Canadian Health Measures Survey (CHMS) interviewees from cycle 1 ...

Required Statement for the Analysis of Statistics Canada Data at the Research Data Centre. System Analysis of Biological Processes. Volume 3: Kiichi Tsuchiya and Mitsuo Umezu Mechanical Simulator of the Cardiovascular System: Design, Development and Application. Manuscripts submitted to Advances in System Analysis must be original, pointing out the advancement of the contribution with respect to the actual a-priori knowledge. Manuscripts or exposes should be sent to the Editor of the Series: Dietmar P. F. Moller, Johannes Gutenberg Universitiit Mainz, Physiologisches Institut, Saarstr. The development of system-level, mechanistic, computational models has the potential to become an indispensable foundation and tool for improving our understanding of biological systems, enabling the integration of different processes into coherent and rigorous representations that can be simulated or analyzed and whose outcomes can be compared to laboratory data and used to guide experimental work. An intriguing property of biological systems is their ability to perform computation using information processing mechanisms and thus ensuring robust development and survival under different enviro

Analysis of Biological Development book. Read reviews from world's largest community for readers. This text for embryology and developmental biology cour... Focusing on stages of development in higher organisms, the influence of gene activity on development and other current topics, this text references experimental method This text for embryology and developmental biology courses provides coverage of the basic principles of development, both from the standpoint of embryogenesis as well as the molecular aspects of development. Focusing on stages of development in higher organisms, the influence of gene activity on development and other current topics, this text references experimental methods throughout. ...more. Get A Copy. Amazon.