Developmental Biology BIOL 342
Professor Daphne Soares PhD
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Mondays and Wednesdays 10-11:20
KUP 204

Office hours: Mondays after class or by appointment.

Recommended Book:
Developmental Biology 12th edition Michael J.F. Barresi, Scott F. Gilbert
eISBN-13: 9781605358239

Purpose:
Students who successfully complete the course will be able to:
- Name, describe and order the main stages of development common to most multicellular organisms.
- Describe the main anatomical changes that occur during development.
- Identify the cellular behaviors that lead to morphological change during development.
- Describe the hierarchy of gene activation that occurs in early Drosophila development.
- Understand how gene activation plays a role in differentiation and development.
- Describe the unique characteristics of the Hox genes and explain how they act as master regulators of development in multicellular organisms.
- Describe the main signaling pathways that play important roles in development. • Explain how embryonic stem cells and their alternatives can be used in medical treatments.

Grading:

Anonymous survey	1 point	2%
Pre-req exam	4 points	8%
Exam 1	10 points	20%
Exam 2	10 points	20%
Exam 3	10 points	20%
News reports	5 points	10%
Final Exam	10 points	20%
	Total = 50 points	100%

Grading Scale		
A	90-100%	
B+	85-89%	

B	80-85%	
C+	75-80%	
C	70-74%	
D	60-69%	
F	0-59%	

- There will be three exams during the semester, and each will consist of essay questions along with some short-answer questions. The exams will cover mainly new material (since the previous exam), although some concepts from earlier in the course will be revisited on the later exams. Exam questions will be based on the lecture material.

- The final exam will be comprehensive and will also consist of multiple-choice and short answer questions. Approximately half of the final exam will count for the last section of the course with the remaining half devoted to the first three sections.

- There will be possible extra credit for the entire class as the semester proceeds.

Anonymous survey:
You will receive points by just answering to the survey on Canvas. There is a deadline that is not extendable.

Pre-req exam:
In the second week of the course there will be a short exam on the prerequisite material of the course. This exam will cover topics from Foundations of Biology: Ecology and Evolution and Cell & Molecular Biology. A good strategy to prepare for this exam is review the syllabus of those courses and remind yourself of the main topics. It is important that you remember this material to succeed in developmental Biology.

News reports:
Science is changing at a very fast pace. I will pick popular science news articles during the semester as they are published for you to read and summarize. Specific directions for the submission will depend on the article and will be announced when I pick the article itself.

Academic Honesty:
The university has approved a Code of Academic Integrity. The code prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures. The University Senate requires that students sign a statement on each examination or assignment as follows: “I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment).” Please review

the university policies on academic integrity (including what happens if you are caught doing something you shouldn't)

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

I will NOT tolerate ANY cheating or plagiarism in this class.

Date	Topic	
9/7	Introduction	Chapter 1
9/12	Specifying Identity	Chapter 2
9/14	Differential Gene Expression **PREREQ EXAM**	Chapter 3
9/19	Cell to cell communication	Chapter 4
9/21	Stem Cells	Chapter 5
9/26	Gametogenesis and fertilization	Chapter 6 and 7
9/28	Gametogenesis and fertilization	Chapter 6 and 7
10/3	**Exam I**	
10/5	Early development in snails flowers and nematodes	Chapter 8
10/12	Sea urchins and tunicates	Chapter 10
10/17	Amphibians and Fish	Chapter 11
10/19	Birds and mammals	Chapter 12
10/24	Neural tube	Chapter 13
10/26	Brain development	Chapter 14
10/31	**Exam II**	
11/2	Neural crest	Chapter 15
11/7	Ectoderm	Chapter 16
11/9	Mesoderm	Chapters 17,18
11/14	Mesoderm II	Chapter 19

11/16	Endoderm	Chapter 20
11/21	Metamorphosis	Chapter 21
11/23	FRIDAY CLASSES MEET	
11/24-11/27	THANKSGIVING	
11/28	**Exam III**	
11/30	Symbiosis and development	Chapter 24
12/5	Evodevo	Chapter 25
12/7	Health and disease	Chapter 23
12/12	Latest topic in the news	
12/13	Open for discussion/review	
TBB	**FINAL**	