Developmental Biology

Biol 351 - Spring Semester, 2016  Lecture: MW, 3:00-4:15 p.m. LSC 233

ALL MATERIAL ARE AVAILABLE ON DESIRE2LEARN (D2L)

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Office Hours: Mondays & Fridays 9:30 am-11 am, Thursdays 4-5 pm, and by appointment


Introduction to Biology 351
Developmental Biology is the study of the molecular and cellular events that lead to the generation of a multicellular organism from a fertilized egg. Although much is known about the morphological changes that take place during development, there is a lesser understanding of the mechanisms by which these changes occur. Because of this lack of knowledge, and because of the interest in understanding how something as complex as a human being can develop from a single cell, Developmental Biology is one of the most active areas of biological research today.

In essence, Developmental Biology is a study of cell differentiation; to its extreme extent, development of an entire organism from a single cell involves several stages of differentiation and cell interaction. The course will investigate the cellular and molecular processes involved in generating an embryo, in creating various tissues and organs, and the effect of external stimuli on development.

Goals and Objectives
Upon completion of the lecture portion of this course, students will be expected to:
1. Identify the genes and cellular mechanisms responsible for development.
2. Describe the cellular and molecular events involved in the generation and fusion of gametes prior to and during fertilization.
3. Discuss the morphological changes that occur during early embryogenesis, including the events of cleavage, axis formation, gastrulation, and neurulation.
4. Outline how tissue layers form and how different organs are derived from each embryonic layer.
5. Discuss how gene expression and cell signaling regulate developmental processes, and how cells with identical DNA content can have different developmental fates.
6. Identify several organisms used for studying developmental processes, and describe the similarities found in the development of these very dissimilar organisms.
7. Discuss the relationship between developmental biology and other branches of biology such as anatomy, ecology, and evolution.

Course Information

Grading Methods:
Course grades will be determined by your performance on the following:
Unit Exams I - IV – scaled to 100 pts. Each
Exams will be unit exams covering material presented in the lectures indicated on the course syllabus. The lecture material will cover approximately one chapter per lecture.
The fourth exam will be given during the final examination period. Exam questions will only be related to topics covered in lecture, but may require you to integrate material from sections presented independently in class. Exams will test your comprehension of the material covered by asking you to apply your knowledge to situations not directly discussed during lecture.

Grading Policy
Grades will be based upon the total points earned versus the total points possible over the course of the semester, and will determined by the following scale:

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<tr>
<th>Percentage</th>
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<tr>
<td>94-100</td>
<td>A</td>
<td>73-76.99</td>
<td>C</td>
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<tr>
<td>90-93.99</td>
<td>A-</td>
<td>70-72.99</td>
<td>C-</td>
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<tr>
<td>87-89.99</td>
<td>B+</td>
<td>67-69.99</td>
<td>D+</td>
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<td>83-86.99</td>
<td>B</td>
<td>60-66.99</td>
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<td>80-82.99</td>
<td>B-</td>
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<td>F</td>
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<td>77-79.99</td>
<td>C+</td>
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Attendance Policy
Attendance will not be taken at lecture. However, attendance at all lectures certainly works to your benefit, as exam questions will be based significantly on material covered in lecture.

Test Format and Policies
All exams will follow roughly the same format. The exam is generally broken down into “chunks” that center on a common theme/topic/study. You will be given passages to read, and you will need to answer both objective and essay questions within the context of the information in the passage. Exams will test your comprehension of the material covered by asking you to apply your knowledge to situations not directly discussed during lecture. The exact point value of all questions will be clearly indicated on the exam so that you can determine which questions to spend the most time answering.

Students missing an exam must contact Dr. Gomez within 48 hours of the exam period or receive a failing grade for the exam. In order for an absence to be excused, the student must provide a written excuse from the Student Health Service or a parent or guardian, and the excuse must contain a phone number for contacting the person who authored it. Each case involving an excused absence will be dealt with on an individual basis.

Academic Integrity
You are reminded of the Academic Code of Honesty in place at the University of Scranton. All tests fall under the auspices of this policy. All graded materials must contain only work that you have completed yourself.

I have a ZERO TOLERANCE policy for dishonesty. Any proven instance of academic dishonesty merits AUTOMATIC FAILURE for the course.

Students with Disabilities
In order to receive appropriate accommodations, students with disabilities must register with the Center for Teaching and Learning Excellence and provide relevant and current medical documentation. Students should contact Mary Ellen Pichiarello (Extension 4039) or Jim Muniz (Extension 4218), 5th floor, St. Thomas Hall, for an appointment. For more information, see http://www.scranton.edu/disabilities.
**Writing Center Services**

The Writing Center focuses on helping students become better writers. Consultants will work one-on-one with students to discuss students’ work and provide feedback at any stage of the writing process. Scheduling appointments early in the writing progress is encouraged.

To meet with a writing consultant, stop by during the Writing Center’s regular hours of operation, call (570) 941-6147 to schedule an appointment, or complete the Writing Assistance Request Form online. You can also schedule an online appointment using Google Docs and Google Talk.