Biology 328: **Developmental Biology**

Instructor: Bethany Rader
Email: brader@uoregon.edu
Class Meting: MW 4:00-5:20 PM
Knight Library Rm 101
Office Hours: Klamath 373A
M 10:00 – 11:00AM
W 10:00 – 11:00AM
Or by appointment

GTF: Sasha Feoktistov
Email: feoktist@uoregon.edu
Office Hours: TBD

Course description and objectives

Developmental Biology is dependent on the synthesis of many different disciplines, including cell biology, anatomy and physiology, genetics, molecular biology, and evolutionary biology. In this course we will explore a number of aspects of developmental biology, focusing mainly on - cell biology and genetics. The course is divided into three topics. First we will begin with an overview of developmental processes. Second we will discuss the underlying genetics of these processes. Finally we will explore a number of interesting topics in the field of developmental biology. You will also get a hands-on look at some of the developmental processes in the lab portion of the class. Through learning these topics and participating in lab, and through class exercises, you will think about how experiments are designed to test hypotheses, and learn how scientists come to the conclusions that they ultimately publish in journals and in texts like the one we are learning from.

Because scientific research in the topics covered in class is ongoing and continually expanding, the lectures and reading materials in the syllabus are fluid. Although required readings will remain required, supplementary reading and lecture topics may change to incorporate new material.

Course Overview

Topic I: Overview of Development
Lecture 1: Principles of Development
Lecture 2: Cell Signaling and Cell Fate Specification
Lecture 3: Fertilization and Cleavage
Lecture 4: Gastrulation
Lecture 5: *No Class*
Lecture 6: Axis Formation
Topic II: Developmental Genetics
Lecture 7: Principles of Developmental Genetics
Lecture 8: Developmental Genetics of Drosophila I
Lecture 9: Developmental Genetics of Drosophila II
Lecture 10: Somitogenesis

Lecture 11: Neural Tube
Lecture 12: Neural Crest
Topic III: Topics in Developmental Biology
Lecture 13: Organogenesis
Lecture 14: Limb Development
Lecture 15: Developmental Neurobiology
Lecture 16: Sex Determination
Lecture 17: Stem Cells and Cloning
Lecture 18: The evolution of Development

Email Etiquette
When emailing the instructor or GTF, please include "Bi328" in the subject line. This helps ensure that we will not overlook your email by accident. We will try to answer your email in a timely manner; however, we do not always check our email in the late evenings or weekends.

Time and Location:

Lecture:	Knight Library Rm 101
	Mon: 4:00 – 5:20 PM
	Wed: 4:00 – 5:20 PM
Lab:	Klamath 5
	Tues: Noon – 1:50 PM
	Tues: 2:00 – 3:50 PM

Inclement Weather
It is possible, although highly unlikely, that we will cancel classes due to inclement weather even if the University remains open. Cancelation notices will be posted on Blackboard.

Website
All class information will be posted on Blackboard.

Work Load
The standard expectation for a four-credit course is that you will receive 4 hours of instruction per week and put in at least 8 hours outside of class per week doing readings, assignments and studying for exams. This includes the laboratory section as well as the lecture portion of the class.

Required Text
The readings are from the 10th edition of Developmental Biology by Scott Gilbert. It is the newest edition, and it therefore might be hard to find used. There will be two copies available in

the science library, as well as the 8th edition of Developmental Biology. Finally, the 6th edition of Developmental Biology is also available online at PubMed Books: http://www.ncbi.nlm.nih.gov/books/NBK9983/. Although the information in the older edition is in general the same, please note that there are always some differences in page numbers for assigned readings, topic arrangement and current knowledge between editions. Links to other required readings will be posted on Blackboard. Additional or optional readings will be posted on Blackboard as PDFs.

Reading Assignments

The reading assignments are posted in a folder on Blackboard. Reading assignments should be completed *before* the lecture or lab section for which they are assigned.

Required Supplies

iClicker (available in the Duck Store)

Participation

We are using iClickers as a way to facilitate classroom participation and discussion. Please bring your iClickers to lecture, as you will receive credit for "clicking in" during class time. You will be scored on *participation* rather than *correctness*. You will be allowed to miss two class periods without "clicking in" before we begin to deduct from your participation grade.

Exams

There will be three exams: two midterms and one final. Although the final will essentially be a third midterm, exam material is in a sense cumulative due to the connection between concepts learned in lecture. The material on the exams will primarily focus in the materials covered within the specific section of the course preceding the exam. Exams can contain materials from lectures, readings and labs, and will most likely be a combination of multiple choice and short answer questions. The exam schedule is listed on the last page.

Labs

Lab sections are held once a week and are mandatory. The lab assignments are posted on Blackboard under the appropriate week. The lab assignments should be downloaded, printed and brought to the lab section. Completed lab assignments are due the Wednesday following lab at 12:00om in the designated box. If for some reason you cannot attend your normal laboratory section you may *not attend* the other section. The lab rooms have a limited capacity that is set by the fire code. Contact the GTF if you know that you are going to miss your normal lab section. It is best if you can contact the GTF *before* missing lab, so that we can make necessary arrangements so that you can receive credit.

Grading

20% Exam 1
20% Exam 2
25% Final Exam
20% Participation and Lecture Assignments/Quizzes
15% Laboratory Work

General Policy on Missed Assignments

Assignments must be turned in on time and there are no early exams or make-up exams. If you are ill, or have an emergency where you cannot attend class, miss an assignment, or miss an exam please contact the instructor. Again, it's best if you contact the instructor *before* missing the assignment or exam so that we can make necessary arrangements so that you can receive credit.

Classroom Etiquette

Please arrive on time. Lectures and labs begin promptly on the hour. Please do not leave early as this is disruptive to everyone. If you have an unusual circumstance and must leave early, please sit near the exit so that you may leave quietly. Please be respectful of your fellow students.

Inclusiveness

The University is working to create inclusive learning environments. Please notify the instructor if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact Disability Services in 164 Oregon Hall at 541.346.1155 or disabsrv@uoregon.edu.

Plagiarism and Cheating

Plagiarism and cheating will not be tolerated. You are expected to do your own work on all assignments and exams. Using another student's iClicker during class constitutes cheating. You are encouraged to discuss ideas with other students and study together, but do not copy someone else's work, and don't allow anyone else to copy your work. All students are expected to conform to the student conduct code (See URL below) – students not in compliance will be brought to the attention of the University.

Student Conduct Code
http://www.uoregon.edu/~stl/programs/student_judi_affairs/conduct---code.htm

Week	**Date**	**Meeting**	**Topic**
1	Mon, Jan 6	Lecture	Principles of Developmet
1	Tues, Jan7	Lab	*Cell-Cell Communication*
1	Wed, Jan 8	Lecture	Cell Signaling and Cell Fate Specification
2	Mon, Jan 13	Lecture	*Fertilization and Cleavage*
2	Tues, Jan 14	Lab	Sea Urchin Fertilization
2	Wed, Jan 15	Lecture	Gastrulation
3	*Mon, Jan 20*	*Lecture*	*No Class*
3	Tues, Jan 21	Lab	*Exam Review*
3	Wed, Jan 22	Lecture	Axis Formation
4	Mon, Jan 27	Lecture	**EXAM I**
4	Tues, Jan 28	Lab	*Drosophila Oogenesis I*
4	Wed, Jan 29	Lecture	Principles of Developmental Genetics
5	Mon, Feb 3	Lecture	Developmental Genetics of Drosophila I
5	Tues, Feb 4	Lab	*Drosophila Oogenesis II*
5	Wed, Feb 5	Lecture	Developmental Genetics of Drosophila II
6	Mon, Feb 10	Lecture	Somitogenesis
6	Tues, Feb 11	Lab	*Drosophila Oogenesis III*
6	Wed, Feb 12	Lecture	Neural Tube
7	Mon, Feb 17	Lecture	Neural Crest
7	Tues, Feb 18	Lab	*Exam Review*
7	Wed, Feb 19	Lecture	**EXAM II**
8	Mon, Feb 24	Lecture	Organogenesis
8	Tues, Feb 25	Lab	*Limb Development I*
8	Wed, Feb 26	Lecture	Limb Development
9	Mon, Mar 3	Lecture	Developmental Neurobiology
9	Tues, Mar 4	Lab	*Limb Development II*
9	Wed, Mar 5	Lecture	Sex Determination
10	Mon, Mar 10	Lecture	Stem Cells and Cloning
10	Tues, Mar 11	Lab	*Exam Review*
10	Wed, Mar 12	Lecture	The evolution of Development
11	TBD	exam	**EXAM III/FINAL**