BS1520 ~ Developmental Biology
Course Syllabus
Spring 2022
Crawford 169
MWF 10:00 – 10:50 a.m.

INSTRUCTORS:

Dr. Deborah L. Chapman, 102 LSA, 624-0774, dlc7@pitt.edu
Dr. Jeffrey D. Hildebrand, 103 LSA, 624-6987, jeffh@pitt.edu

UTA: Ms. Beatrice Milnes: blm131@pitt.edu

Course Design & Office Hours:

Dr. Chapman: Fridays 3-4pm via Zoom (link to meetings on Canvas)
Dr. Hildebrand: Monday and Tuesday 1pm. Clapp L-1 and via Zoom. Alternate times to can be arranged via email.

Professors will be available synchronously at our scheduled class times (see syllabus). PDFs of the slides will be available on the Canvas site for this class. *Notifications for this course will occur via Canvas, therefore you must enable Immediate Notifications in your Canvas account for this course.* All lecture will be provided synchronously during class time. Sessions will occasionally occur synchronously via Zoom if students are quarantined due to COVID.

Dr. Chapman: Office hours will occur via Zoom Fridays 3-4 pm. These sessions will be used for open discussion of the lecture material and/or assigned papers. I will be at the scheduled Zoom sessions for the first 15 minutes. If no one shows up, then I will leave the session unless student and instructor have planned for a specific time. Alternate times can be arranged via email.

Dr. Hildebrand: Office hours will by hybrid and will be held in person in room L-1 Clapp Hall and via Zoom on Monday and Tuesday at 1:00PM . The Zoom link can be accessed from Canvas. These sessions will be used for open discussion of the lecture material and/or assigned papers. Alternate times can be arranged via email.

Ms. Beatrice Milnes: *Undergraduate TA.* Ms. Milnes will be available for office hours, help with study tips, and discuss the assigned papers. Thursdays, 2pm. Room L-1 Clapp Hall.

TEXT: *Principles of Development* 6th Ed. (2019) Wolpert *et al*.; Oxford Univ. Press.

#	DATE	LECTURE	CHAPTER* refer to Learning Objectives	INSTRUCTOR
1	Jan. 10	Introduction & Concepts Devel. Biol. I	1	Chapman
2	Jan. 12	Concepts in Devel. Biol. II	1	Chapman
3	Jan. 14	Model Systems – Frogs & Fish	3	Chapman
4	Jan. 19	Axis Determination I	4	Chapman
5	Jan. 21	Axis Determination II *add/drop ends	4	Chapman
6	Jan. 24	Model Systems – Chick Assignment #1 due 5 pm	3	Chapman
7	Jan. 26	Model Systems – Mouse	3 & 7	Chapman
8	Jan. 28	Axis Determination III Extended add/drop ends	5	Chapman
9	Jan. 31	Axis Determination IV	5 & 3	Chapman
–	Feb. 2	Review Session	–	Chapman
–	Feb. 4	**Exam 1 – Lectures #1-9**	–	Chapman
10	Feb. 7	Germ Layer Formation I	4 & 9	Chapman
11	Feb. 9	Germ Layer Formation II	4 & 9	Chapman
12	Feb. 11	Somite Formation	5, lecture	Chapman
13	Feb. 14	Homeotic Genes & Retinoic Acid I	5, lecture	Chapman
14	Feb. 16	Homeotic Genes & Retinoic Acid II	5, lecture	Chapman
15	Feb. 18	Neural Induction	4, 5, 7	Hildebrand
16	Feb. 21	Neural Morphogenesis Assignment #2 due 5 pm	7 & 11	Hildebrand
17	Feb. 23	Neural Patterning	11, lecture	Hildebrand
18	Feb. 25	Neural Architecture	7, 11, lecture	Hildebrand
–	Feb. 28	Review Session		Chapman/ Hildebrand
–	Mar. 2	**Exam 2 – Lectures #10-18**		Chapman/ Hildebrand
19	Mar. 4	*Drosophila* Development I	2, lecture	Hildebrand
	Mar.5-12	*Spring break*	–	–
20	Mar. 14	*Drosophila* Development II	2, lecture	Hildebrand

21	Mar. 16	*Drosophila* Development III	2, lecture	Hildebrand
22	Mar. 18	*C. elegans* Development Monitored Withdrawals Ends	6, lecture	Hildebrand
23	Mar. 21	Other invertebrate models	6, lecture	Hildebrand
24	Mar. 23	Branching Morphogenesis Assignment #3 due 5 pm	7, 10, lecture	Hildebrand
25	Mar. 25	Cardiac Morphogenesis	10, lecture	Hildebrand
26	Mar. 28	Eye Development I – Fly	10, lecture	Hildebrand
27	Mar. 30	Eye Development II – Vertebrate	10, lecture	Hildebrand
–	Apr. 1	Review	–	Hildebrand
–	Apr. 4	**Exam 3 – Lecture #19-27**	–	Hildebrand
28	Apr. 6	Limb Development I – Fly	10	Chapman
29	Apr. 8	Limb Development I – Vertebrate	10	Chapman
30	Apr. 11	Limb Development II – Vertebrate	10	Chapman
31	Apr. 13	Sex Determination	9, lecture	Hildebrand
32	Apr. 15	Epigenetics and Genomic Modifications	9, lecture	Hildebrand
33	Apr. 18	Regeneration	12, lecture	Hildebrand
34	Apr. 20	Stem Cells	8, 9, lecture	Hildebrand
35	Apr. 22	Development & Evolution I Assignment #4 due 5 pm	14, lecture	Hildebrand
	Apr. ??	**Exam 4 – Lectures #28-37**		

Course Requirements: Genetics is a required prerequisite for this course, which means you must have already taken it to enroll in Developmental Biology. We suggest that you take it prior to taking Developmental Biology and not concurrently as this course requires that you have a working knowledge of Genetics.

Course Material: We will be using Canvas as the Learning Management System for this course. Tests will be administered in the classroom using Canvas. Office hours will be held via Zoom. You will be able to access all of these platforms for the course through Canvas.

Textbook: *Principles of Development* – Wolpert et al., 6th Edition. This is found on-line (on Canvas). You may opt out of this text book, but must do so

Grading: Your grade will be determined by 4 exams, and 4 assignments. Exams, which constitute 90% of your final grade, are based on material that is covered in the lectures and in the assignments. The textbook is provided to complement the lecture material (for clarifying the material in lectures and for amplifying aspects of the lectures), and to offer supplementary information. Not all of the material taught in lectures is discussed in the textbook: it is therefore, IMPERATIVE that you keep up with the lecture material.

There will be 4 assignments that together make up 10% of your final grade. These assignments/quizzes are based on papers that you will be required to read. The assigned papers are meant to enhance the lecture material and give you a better understanding of how developmental biology research is performed. These may be "classic" papers or current papers that address new methods or advances. This is testable material!

Each of the four exams is worth 22.5% of the final grade (total of 90%). Each exam will be no more than 50 minutes in length. Each exam will include only that material covered after the previous exam (8-9 lectures set up as Modules). Exams will be given SYNCHRONOUSLY, in class via Canvas during the regularly scheduled class time. This means that you must bring your laptop to class to take the exam. The final exam (Exam 4) will be given during finals week (**The Registrar has yet to post the date & time** – we wait with bated breath and will update the syllabus once it has been set) but will only last for a maximum of 50 minutes. While each exam will focus on the material covered in each quarter of the course, all lecture material (and therefore testable material) builds on concepts taught throughout the semester.

Missed Exams: Any missed exam will be graded as zero unless excused. A request for excuse must: 1) be made in writing to the instructor within 24 hours of the missed exam; 2) explain in detail the reasons why it was missed; and 3) be accompanied by written external documentation (from doctor, etc.). The instructors will decide whether a request for an excuse will be granted and will inform the student. If an excuse is granted, the exam must be made up as an ORAL exam. This oral exam must be made up within one week of the originally scheduled exam. No more than ONE excused exam (replaced by an oral exam) will be permitted.

Academic Integrity: All students are expected to adhere to the standards of academic honesty. Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed. View the complete policy at www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

The punishment for any academic integrity violation will be an automatic failing grade (F) for this course and a report will be filed with the University. Note that multiple offenses will result in further punishment.

The posting (either verbatim or paraphrased) of any assignment or examination, or subsection thereof, that is formally assessed for part of your course grade to online resources (such as Chegg) will constitute an academic integrity violation. It also may constitute a violation of US copyright law.

The access or utilization of any such online postings, even if you did not personally post them, also constitutes an academic integrity violation.

Students are expected to do their own work. You may not work with another student (or anyone else) on any graded coursework unless specifically authorized to do so on a specific assignment. Even in those cases, students are still responsible for doing their own work. Any evidence that we find or formal complaints that we receive of students colluding on assessed work or free-riding from the work of others will constitute an academic integrity violation.

Withdrawal: The University Add/Drop period ends on **Jan. 21st,** and extended Add/Drop ends **Jan. 28th.** Withdrawals after this date can only be granted for special reasons, and only with permission of both instructors and the appropriate dean. The submission deadline for

Monitored Withdrawals is **March 18th**. Low grades cannot be used as a reason for late withdrawal. It is important that you make an early decision about withdrawal from the course.

Disability Statement: If you have a disability for which you are, or may be, requesting an accommodation, you are encouraged to contact both the instructor for this course and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

E-mail Communication: Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students who choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to http://accounts.pitt.edu, log into your account, click on **Edit Forwarding Addresses**, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)

Classroom Recording: Lecture content will sometimes be provided as video recordings, but this is not guaranteed. Classroom recordings must be approved by the instructors.