

**BIOLOGY 424 GENERAL EMBRYOLOGY
WINTER 2011**

Dr. R.R. Bowers, Bio Sci 333. Office hours: T 1-3 Walk in only, first come, first served and do not sign up in Biol. Office.

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Texts: Carlson, BM. Patten's Foundations of Embryology. McGraw-Hill, 7th ed., 2002.
Schoenwolf, GC . Laboratory Studies of Vertebrate and Invertebrate Embryos. Prentice Hall, Eighth Edition, 2001.
Gilbert, S. Developmental Biology. Sinauer, 6th edition 2000 (not required);
available by checking out selected Xerox readings in the lab.

<u>DATE</u>	<u>LECTURE TOPIC</u>	<u>LABORATORY TOPIC</u>
1/3	Origin of the first egg (Campbell) (Bio 100ABC text), pp492-498) Available in lab as a reading.	Sea urchin devel(Schoenwolf, Chapter1,handout)
1/5	Primitive multicellular systems and cell colonies, phytomonads and slime molds (Gilbert,pp35-44)	Frog develop(Schoenwolf, Ch 3; Patten Ch 4 to 7)
1/10	Morphogenetic fields and regulation (Gilbert,pp 54-61;64-66)	Chick primitive streak Schoenwolf,pp 108-121 ; Patten Ch 4 to 7, Appendix)
1/12	Cell movement;cell affinity;cell recognition;cell adhesion;cell communication (Gilbert,pp66-74; 149-155;170-176)	Chick 18 hour(Schoenwolf, pp 108-121; Patten,Appendix)
1/17	HOLIDAY, Campus closed	
1/19	continued from previous lecture	Chick 24 hour (Schoenwolf, pp122-135;Patten,Appendix)
1/24	Polarity;gradients; morphogenetic fields;dom. in develop(Gilbert,pp64-66;570-572)	Chick 33 hour (Schoenwolf, p87-107; Patten,Appendix)
1/26	Fertilization(Gilbert,pp185-216;Patten,Ch 4); Cleavage pattern(Gilbert,pp 223-241;Patten,Ch 5)	Chick 33 hour cont.
1/31	Induction(Gilbert,pp 143-155;314-324; Patten pp26-29)	Chick 48 hr(Schoenwolf p 138-171; Patten,Appendix)
2/2	Genetic and cytoplasmic control of development (Gilbert,pp31-32;79-86;134-137))	Chick 48 hour cont.

DATE	LECTURE TOPIC	LABORATORY TOPIC
2/7	HOUR EXAM	Review starfish, frog, 18-48 hour chick
2/9	Hormonal control of develop.(Gilbert,pp524-527); Nervous control of develop.(Gilbert,pp 428-434), Environmental control of develop. (Gilbert,pp 652-653)	LAB PRACTICAL EXAM (starfish, frog,chick18-48hr)
2/14	Limb development and regeneration(Gilbert,pp 503-519:Patten Ch 12)	Chick 72 hr WM and selected slides only (Schoenwolf pp 172-202; Patten, Appendix)
2/16	Major features of human development,fertilized egg to gastrula(Gilbert ,pp 354-360; Patten, Ch 4 to 9)	Chick 72 hr cont.,96 WM only (Patten, Appendix)
2/21	Extra-embryonic membranes(Gilbert,pp,361-362; Patten Ch 8)	10mm pig (Schoenwolf pp 251-309; Patten, Appendix)
2/23	Endodermal derivatives (Patten, Ch 10 to 19)	continue 10 mm pig
2/28	Endodermal derivatives cont.; Ectodermal derivatives(Patten, Ch 10-19)	continue 10 mm pig
3/2	Ectodermal derivatives cont.	continue 10 mm pig
3/7	Mesodermal derivatives(Patten, Ch 10-19)	continue 10 mm pig
3/9	Mesodermal derivatives cont.	LAB PRACTICAL EXAM (72,96hr chick,10 mm pig)
3/14	FINAL LECTURE EXAMINATION <u>Monday</u> 8-10:30AM	

COURSE OBJECTIVES: This course covers the principles and methods of development of the vertebrate body. It will use examples from lower animals and plants to cover these points as well as higher vertebrates including the human. The laboratory will study the development of the starfish, frog, chicken and pig focusing on parts of their development which are similar to the human. When finished with the course, you will have knowledge of human and lower animal embryology.

Exams are from lecture notes so use the text only to help understand lecture. The figures are quite good and helpful. Do not worry about material in the books that is not covered in lecture and lab. If you did not hear it, it is not on the exam. That is why attendance in lecture and lab is so very important.

NO VIDEO RECORDING ALLOWED IN LECTURE OR LAB. I want you to learn the anatomy, not just memorize the slides. Tape recordings are encouraged both in lecture and lab.

ALL EXAMS (LECTURE AND LABORATORY) ARE WORTH 100 POINTS EACH. HIGHEST POINT TOTAL POSSIBLE IS 400 POINTS. NO MAKE - UP EXAMS WILL BE GIVEN WITHOUT PRIOR CONSENT OF INSTRUCTOR AT LEAST 48 HOURS BEFORE THE SCHEDULED EXAM. THIS POLICY IS FIRM. GRADING (A,A-,B+,B,B-,C+,C,C-,D+,D,D-,F) WILL BE USED. As=90%, Bs=80%, Cs=70%, Ds=60%, F=59% OR LOWER, UNLESS CURVED. EXTRA CREDIT QUESTIONS MAY BE GIVEN BUT TO YOUR BENEFIT, 400 POINTS WILL STILL BE USED FOR GRADING PURPOSES.

THIS CLASS STARTS AT 8:00 am firm. Since there is no rear door, I can not have the class disrupted by you walking in late. Frequent tardiness and unexcused absences can and will negatively affect your grade if you are on the borderline. If you want to be on time, you can be on time!

"ACADEMIC HONESTY: Students are expected to read and abide by the University's Academic Honesty Policy, which can be found in the current Schedule of Classes and at <http://www.calstatela.edu/academic/senate/handbook/ch5a.htm>. Students who violate this policy will be subject to disciplinary action, and may receive a failing grade in the course for a single violation."

"Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation."