BIOLOGICAL SCIENCES 333
DEVELOPMENTAL BIOLOGY
96-2

Prerequisites: BISC 202, BICH 221 (or BISC 201), and BICH 222 (or equivalent such as BISC 321). (May not be taken for credit in addition to BISC 203).

Instructor: Michael J. Smith
Office: SSB 7155
Office Hours: T.B.A.

Teaching Assistant: Office: T.B.A.
Office Hours: T.B.A.


Exam Schedule: Each exam is worth 33.3% of your grade.

Midterm I
Midterm II
Midterm III

Reading Assignments:
Additional reading may be assigned during the classes.

Outline of topics and assigned reading in text:

1. Introduction to embryos. Basic events and mechanisms of development. Chapter 1, pp. 1-12, 28-33.


3. Transdetermination.
   pg. 729-733 in 3rd Edition
   pg. 329-332 in 3rd Edition

4. Gamete structure and gametogenesis.
   Chapter 4, pp. 121-128.
   Chapter 22, pp. 798-817.

5. Fertilization and the initiation of development
   Chapter 4, pp. 128-158.
   Chapter 13, pp. 466-473.
6. Cleavage
   Chapter 5, pp. 164-198.

7. Gastrulation and Neuralation.
   Chapter 6, pp. 202-228
   Chapter 7, pp. 245-258 and 271-274.

8. Mechanisms of Morphogenesis
   Chapter 3, pp. 77-85.

9. Autonomous cell specification by cytoplasmic determinants
   Chapter 14

10. Axis formation in insect embryos; morphogenetic gradients.
    Chapter 15, pp. 531-548; 562-568.

    Chapter 16, pp. 575-603.
    Chapter 18, pp. 647-655.

12. Developmental mechanisms of evolutionary change.
    Chapter 23

Other topics and associated readings may added at the discretion of the instructor and may
include: vertebrate limb formation, metamorphosis, and elaboration of the insect body plan.

Tutorials: The one tutorial per week is designed to facilitate understanding of lectures and
text, especially the experimental approaches used.

Reading: The text book reading assignments are designed to clarify material covered in
lectures, providing additional examples and a different perspective. The amount of reading,
and number of lectures, devoted to each topic varies considerably. The readings will be
most beneficial if done concurrently with lectures.

Note: BISC 333 is required of all majors in Biological Sciences. It is anticipated that this
course will be given again in 96-3, and 97-1.