BI 117: DEVELOPMENTAL BIOLOGY
CLASS WEBSITE: http://www.its.caltech.edu/~bi117/

Professor: Professor Marianne Bronner and Staff, e-mail, mbronner@caltech.edu
Class Hours: 1:00 – 2:20 p.m., Broad 100 (Rock Auditorium) Tuesdays and Thursdays
Recitation Sections: Mondays or Tuesdays 7-8pm, Broad 100.
Note: Recitation sections cover important materials including much that will be tested. They also provide information about exams and assignments. Attendance is strongly advised and the intelligent course of action.

Teaching Assistants:
Alison Koontz (akoontz@caltech.edu) Lily Tang (wttang@caltech.edu)
Fayth Tan (fhtan@caltech.edu)~~)~~ Miriam Sun (hssun@caltech.edu)

TA's will hold office hours the weeks they are in charge of the weekly assignment.

Grading: 30% Weekly Papers/Problem Sets. 30% Midterm. 40% Final.

Required Text: Scott Gilbert -"Developmental Biology", 11th edition

Recitations: Mondays or Tuesdays, 7pm

SCHEDULE OF TOPICS

Lecture 1—Tuesday Jan 8, 2019~~ & FERTILIZATION~~
OVERVIEW OF EVENTS IN DEVELOPMENT & FERTILIZATION
Reading: Gilbert, Chapter 1

Distribute: Paper #1, Syllabus
~~**Reading**: Gilbert, Chapter 1~~

Lecture 2— Thursday Jan 10, 2019
HOW TO REVIEW PAPERS & TECHNIQUES IN DEVELOPMENTAL BIOLOGY

Lecture 3—Tuesday Jan 15, 2019
FERTILIZATION & CLEAVAGE
Gilbert, Chapter 4&5
Distribute: Paper #2
Due: Paper #1

Lecture 4— Thursday Jan 17, 2019
INVERTEBRATE GASTRULATION
Reading: Gilbert, Chapter 5

Lecture 5—Tuesday Jan 22, 2019
VERTEBRATE GASTRULATION
Reading: Gilbert, Chapter 7&8
Distribute: Problem Set #1~~Paper #2~~
Due: Paper #2
~~Problem Set #1~~

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Lecture 6—Thursday Jan 24, 2019
MESODERM INDUCTION

Lecture 7—Tuesday Jan 29, 2019
NEURAL INDUCTION
Reading: Gilbert, Chapter 9
Distribute: Problem Set #2~~2~~
Due: Problem Set #1 ~~Paper #2~~

Lecture 8— Thursday Jan 31, 2019
LINEAGE DETERMINATION AND INDUCTIVE INTERACTIONS IN THE NEMATODE
Reading: Gilbert, Chapter 5 pp.192-199.

Lecture 9—Tuesday, Feb 5, 2019
EARLY DROSOPHILA PATTERNING
Reading: Gilbert, Chapter 6
Due: Problem Set #2

Lecture 10—Thursday Feb 7, 2019--– **In-Class Midterm**

Lecture 11—Tuesday Feb 12, 2019
NEURULATION AND NERVOUS SYSTEM FORMATION
Reading: Gilbert, Chapter 9
Distribute: Paper #3

Lecture ~~-~~12—Thursday Feb 14, 2019
NEURAL CREST
Reading: Gilbert, Chapter 10
~~NEURULATION AND NERVOUS SYSTEM FORMATION~~
~~**Reading:** Gilbert, Chapter 9~~
~~**Distribute:** Paper #3~~

Lecture ~~-~~13—Tuesday Feb 19, 2019
HOX GENES IN FLIES AND MAMMALS
Reading: Gilbert, parts of Chapter 6&8
~~**Distribute:** Problem Set #3~~
Due: Paper #3

~~NEURAL CREST~~
~~**Reading:** Gilbert, Chapter 10~~
~~**Due:** Paper #3~~
~~**Distribute:** Problem Set #3~~

Lecture 14—Thursday Feb 21, 2019
~~HOX GENES IN FLIES AND MAMMALS~~
~~**Reading:** Gilbert, parts of Chapter 6&8~~
~~MESODERM FORMATION AND DIFFERENTIATION~~
Reading: Gilbert, Chapter 11

Lecture 15—Tuesday Feb 26, 2019

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HEART DEVELOPMENT
Reading: Gilbert, Chapter 12
Distribute: Paper #4
Due: Problem Set #3
~~MESODERM FORMATION AND DIFFERENTIATION~~
~~**Reading:** Gilbert, Chapter 11~~
~~**Distribute:** Paper #4~~
~~**Due:** Problem Set #3~~

Lecture 16—Thursday Feb 28, 2019
LIMB PATTERNING
Reading: Chapter 13
~~HEART DEVELOPMENT~~
~~**Reading:** Gilbert, Chapter 12~~

Lecture 17—Tuesday March 5, 2019
BONE AND CARTILAGE DEVELOPMENT
Distribute: Problem Set #4
Due: Paper #4
~~LIMB PATTERNING~~
~~**Reading:** Chapter 13~~
~~Due: Problem Set #3~~
~~Distribute: Problem Set #4~~

Lecture 18—Thursday March 7, 2019
STEM CELLS & REGENERATION
Reading: Gilbert, Chapter 15&17

Lecture 19—Tuesday March 12, 2019
DEVELOPMENT AND EVOLUTION
Reading: Gilbert, Chapter 19
Due: Problem Set #4

Take Home **FINAL EXAM**
Pick up March 1~~0~~4 after 3p.m., Due by 11am March 20~~18~~th

Weekly REQUIREMENT—Papers or Problem Sets
Due on most Tuesdays. See schedule above.

1 Page Paper on Scientific Article Pertinent to Lectures of that Week
--Papers assigned by TAs
--Give Synopsis and Critique
--Limit one page (typed)

General format of paper reviews (see paper review guidelines handout for details).
I. Background and rationale of experiments.
II. Interpretation of results.
III. Propose the next logical experiment(s) you would do if working in this area.

COLLABORATION POLICY— Study groups prior to exams are acceptable.
Absolutely **NO** collaboration on papers, problem sets, midterm or final.

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Commented [MOU1]: Study period start the 14th ; end of the examination is the 20th.

Concepts presented in papers and problem sets can be *discussed* but paper reviews and problem set answers must be derived autonomously and also written independently. Violation of this policy is a violation of the HONOR CODE.

Extension Policy:

PROBLEM SETS/PAPERS: ONLY for medical reasons with physician's note.
Each day late drops grade 10%. 1 week maximum extension.
MIDTERM/FINAL: ONLY for medical reasons with physician's note.

Extra Credit:

ATTEND A DEVELOPMENTAL BIOLOGY SEMINAR IN THE DIVISION OF BIOLOGY AND WRITE A ONE PAGE SYNOPSIS. EQUIVLANENT TO ONE PAPER REVIEW.