

DEVELOPMENTAL GENETICS I

2003 SCHEDULE

Course numbers: NYUMC G16.2610
NYU: 1009G "Silver Center" (Main Building)

Time: Tuesdays: 2-4 PM lecture,
Fridays: 3:30 - 6 PM discussion
In addition students will meet in small groups to discuss the papers between the lecture and discussion section

Locations: NYUMS: Skirball, 4th floor conference room
NYU: Room 1009G Main, Conference room in the Biology Dept. office

Depending on the affiliation of the instructor, the course will either be held in the Skirball at NYUMC or in the NYU Biology Department at Washington Square.

DG I COURSE DESCRIPTION

This course is an introduction into Developmental Genetics. Fundamental questions, concepts and methodologies of modern inquiry into the genetic and cellular mechanisms of development will be explored through lectures and discussion of primary literature. Topics include embryonic axis determination and the establishment of cellular asymmetry, cell specification through cell-cell interaction and region-specific gene expression, morphogenesis and organogenesis in different species.

Each week two instructors will discuss current topics in developmental biology. Each session includes a lecture and discussion part. In the discussion part students will discuss research articles related to the topic. Students will read 2 research articles as well as a review or book chapter for each session. **Each student is expected to have read the articles** before each session and to be able to present a summary, a detailed description of the data, underlying techniques and figures, and a critique of the research papers.

To facilitate discussion, students will meet in small groups Wednesday or Thursday to discuss the papers.

The recommended textbooks are:

Developmental Biology by Scott Gilbert

Molecular Principles of Animal Development by Alfonso Martinez Arias, Alison Stewart

In addition each student has to write a **five page research proposal which is due Dec. 8th/2003**. The proposal should relate to a topic discussed in the sessions and should be organized into: An Introduction which provides background information, introduces the current knowledge in the field and states the questions and goals addressed by the proposed experiments. An Experimental procedure/result section describes an experiment with an interpretable outcome (no fishing expeditions, please!). The experiment should be experimentally feasible, material for the experiment should either be easy to produce or already available. The experimental procedures used should be described clearly and potential problems should be addressed. In the Discussion section, the possible outcomes of the experiment and their interpretations should be discussed. The topic of the proposal should not be directly related to the student's project either during rotation or in his/her lab.

Active participation throughout the course and the research proposal will contribute to the final grade.

Date	Lecturer	Topic	Location
9/12/03	Ruth Lehmann	Introduction	NYUMS
9/16/03	Ruth Lehmann/Fabio Piano	Establishing the body axes: Localization of maternal determinants (Drosophila and <i>C. elegans</i>)	NYUMS
9/19/03	Lehmann/Piano	Discussion	NYUMS
9/23/03	Alex Schier/Chris Rushlow	Dorso-ventral patterning in Drosophila Establishing the vertebrate body plan (Xenopus/ Zebrafish)	NYUMS
9/26/03	Schier/Rushlow	Discussion:	NYUMS
9/30/03 Note change in time: noon-2pm	Alex Schier Alex Joyner	Establishing the AP body axes in vertebrates, Gastrulation	NYU
10/3/03	Alex Joyner	Discussion	NYU
10/7/03	Steve Small/ Claude Desplan	Segmentation in Drosophila	NYUMS
10/9/03	Small/Desplan	Discussion	NYUMS
10/14/03	Gord Fishell/ Brad Jones	neural patterning (neural tube: neural crest, motor neuron identity), asymmetric cell divisions (asc, N, prospero et al)	NYUMS
10/17/03	Fishell/Jones	Discussion	NYUMS
10/21/03	Jessica Treisman/ Alex Joyner	Compartments/ Imaginal discs/ rhombomeres	NYUMS
10/24/03	Treisman/ Mark Zervas	Discussion	NYUMS
10/28/03	Helen Sink Scott Clark	Attraction and repulsion (netrin, slit, robo, Ephrin) (neurons, DTC, retino-tectal topographic maps)	NYUMS
10/31/03	Sink/ Clark	Discussion	NYUMS
11/4/03	Alex Schier	Establishing left-right asymmetry	NYUMS
11/6/03	No discussion	Skirball retreat	NYUMS
11/11/03	Debbie Yelon Cindi Loomis	Organogenesis (limbs, heart, gut)	NYUMS
11/14/03	Yelon/ Loomis	Discussion	NYUMS
11/18/03	Scott Clark Jessica Treisman	Drosophila eye and <i>C. elegans</i> vulva development (Cell fate, lineage, cell-cell signaling, lateral inhibition, eyeless)	NYUMS
11/21/03	Treisman/Clark	Discussion	NYUMS
11/25/03		No meeting	
11/28/03	No meeting	TKV	
12/2/03	Gord Fishell/Erika Bach	Stem cells (neural crest, hematopoiesis, ckit/steel, NGF)	NYUMS
12/5/03	Fishell/Bach	Discussion	NYUMS
12/9/03	David Fitch Claude Desplan	Evolution and Development Pax-6/ eyeless/ Hox genes	NYU
12/12/03	Fitch/Desplan	Discussion	NYU

12/16/03	Jane Hubbard Ruth Lehmann	Fertilization, germ cell determination and migration, oogenesis, spermatogenesis	NYU
12/19/03	Hubbard/Lehmann	Discussion	NYU

The faculty:

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