

<u>Date</u>	<u>Topic</u>	<u>Lecturer</u>
1/11	Organizational Meeting	
1/13	Fertilization to midblastula transition, cell lineage and fate maps	Mary Mullins
1/14	Establishment of polarity: Cortical rotation and inductive signals	Peter Klein
1:30-3:00		
1/18	Body plan formation: Gastrulation, germ layer formation and morphogenesis	Dan Kessler
1/20	Induction of the primary germ layers	Dan Kessler
1/21	Discussion	DK
1/25	Classical embryology of insects: Determinants and morphogens before genetics and molecular biology	Mary Mullins
1/27	Creating periodic patterns: The complexity revealed after genetics and molecular biology	Mary Mullins
1/28	Discussion	MM
2/1-- Conflict	Establishment of the AP and DV axes in Drosophila	Amin Ghabrial
2/3	Morphogens and pattern	Mary Mullins
2/4	Discussion	MM
2/8	The vertebrate dorsal organizer and neural induction	Mary Mullins
2/10-- Conflict	Establishing neuronal identity along the dorsoventral neuraxis	Doug Epstein
2/11	Room change: BRB 1201 Discussion	
2/15-- Conflict	AP neural patterning in vertebrates	Jeff Golden
2/17	The generation and function of neural crest	JP Saint-Jeannet
2/18	Discussion	
2/22	Somite patterning and bone differentiation	Shannon Fisher
2/24	Muscle developmental programs and satellite cells	Patrick Seale
2/25	Discussion – Room change: BRB 301 MIDTERM EXAM	MM
3/1	Early development and genetics of the mouse	Ben Stanger
3/3	Topics in mammalian organogenesis	Ben Stanger
3/4	Midterm Exam DUE	

3/7-3/11	Spring Break	
3/15	Development and genetics of the zebrafish: the pluripotent germ line	Mary Mullins
3/17	Development and genetics of C elegans: vulval specification and Notch signaling	Meera Sundaram
3/18	Discussion	
3/22	Stem Cells I: Embryonic Stem Cells	John Gearhart
3/24	Stem Cells II: Adult Stem Cells	John Gearhart
3/25	Discussion	
3/29	Left-right asymmetry and patterning of the body axes	Dan Kessler
3/31	Epigenetics in Development	Marisa Bartolomei
4/1	Discussion	DK
4/5	Cellular polarity and asymmetric cell division	Fabrice Roegiers
4/7	Branching morphogenesis in organogenesis	Amin Ghabrial
4/8	Discussion	MM
4/12	Epithelial appendage development	Sarah Millar
4/14	Evo-Devo	Shannon Fisher
4/15	Discussion	
4/19	Phase change in plant development	Scott Poethig--
4/21	Master regulatory genes: regulating the switch to reproductive development in plants	Doris Wagner
4/22	Discussion – FINAL EXAM	MM
4/29	FINAL EXAM Due	

Course director:

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Class Schedule:

Lectures-Tuesday and Thursday 1:30-3:00, **Room 1101** BRBII/III (exceptions are noted on the syllabus in **bold**)
Discussions-Friday 1:30-2:30, **Room 1101** BRB II/III

Recommended Text:

Developmental Biology (9th edition) by Scott F. Gilbert

Discussions:

Each week 1-2 research articles will be assigned for mandatory reading. One student each week will be required to present background material to the article to the rest of the class. All students will be involved in presenting the articles at each meeting.

Students not doing a presentation of background material will instead choose one discussion paper to do a "News & Views" paper, which will be due to the faculty Discussion leader the day of the Discussion. The "News & View" will put the Discussion paper in the context of its field, highlighting the research advance, and should not simply be a summary of the paper. It is a viewpoint, so personal opinions can be included, including your view of potential deficiencies of the article.

Guidance for writing the "News & View":

--The main finding presented by the paper should be mentioned in a succinct opening paragraph to attract the attention of those who are not experts in the field.

--More detail, background and explanation should follow, including your own views. Finish off with comments on the implications of the new work and on future research directions.

--No more than 1000 words; 1 figure (optional). Most readers will have a general scientific background, so specialized terminology should be avoided.

Exams:

The midterm and final exams will be take-home written exams in essay format.

Grading:

Grades will be based on presentations or a written "News & Views" paper, participation in the discussion sessions, and attendance (33%), the midterm exam (33%), and the final exam (33%).

Course Website:

A course website (courseweb.library.upenn.edu/) is available at the Penn Blackboard site. The website includes the course schedule, syllabus, faculty contact information and discussion papers for download. In addition, course lectures will be posted as Powerpoint files following each lecture.