

# NEW COURSE

## "Molecular Genetics and Development in Model Organisms" (GPLS717)

### Molecular Genetics, Genomics, and Bioinformatics (MGGB) Track Graduate Program in Molecular Medicine

Experimental research on fundamental biological problems is conducted in model organisms. Therefore, it is important to learn about current approaches that take advantage of different models. This course covers advanced topics on cell and molecular biology, such as epigenetics, embryogenesis, and differentiation, with an emphasis in different model organisms, including the widely-used mouse, frog, zebrafish, fly, worm, and yeasts, as well as less-common models such as jawless fish, cartilaginous fish, *Dictyostelium* and Archaea, which are preferred to study specific processes.

**Class structure:** During the first hour of each class, the instructor will give a lecture on the listed topic. During the second hour, a student will present a recent paper recommended by the instructor. Two of the lectures will be presented by selected students.

**Credits:** 2.                      **Semester:** Fall.                      **Class meetings:** Wednesdays 3:30 to 5:30pm

**Grading:** Students will be graded according to their participation in class.

**Prerequisites:** Core course GPILS 601, 602, and 603 are required. Students taking the core course will be allowed to take this course simultaneously.

**Course master:** Pablo Rabinowicz, Assistant Professor, Institute for Genome Sciences and Dept. of Biochemistry & Molecular Biology (prabinowicz@som.umaryland.edu).

#### Syllabus:

Class	Date	Topic	Lecturer
1	8/26	Hematopoiesis in <i>Drosophila</i>	Nancy Fossett, Assistant Professor, UMSOM, Dept. Pathology
2	9/2	Immunology in jawless fish	Zeev Pancer, Assistant Professor, UMBI, Center of Marine Biotechnology
3	9/9	Immune system in cartilaginous fish	Martin Flajnik, Professor, UMSOM, Dept. Microbiology & Immunology
4	9/16	Embryogenesis in zebrafish	Jim Du, Associate Professor, UMBI, Center of Marine Biotechnology
5	9/23	Neural development in zebrafish	Rachel Brewster, Assistant Professor, UMBC, Dept. Biological Sciences
6	10/7	Early development in <i>C. elegans</i>	Bruce Vogel, Assistant Professor, UMBI, Medical Biotechnology Center
7	10/14	Vulva development in <i>C. elegans</i>	David Eisenmann, Associate Professor, UMBC, Dept. Biological Sciences
8	10/21	Molecular biology in Archaea	Frank Robb, Professor, UMBI, Center of Marine Biotechnology
9	10/28	Neural development in mouse	David Trisler, Assistant Professor, UMSOM, Dept. Neurology
10	11/4	Molecular genetics in <i>S. cerevisiae</i>	Nancy Craig, Johns Hopkins U.; Howard Hughes Medical Institute
11	11/11	Molecular genetics in <i>Daphnia</i>	Student
12	11/18	Development in <i>Dictyostelium</i>	Carole Parent, Senior Investigator, NIH/NCI, Center for Cancer Research
13	12/2	Epigenetics in <i>S. pombe</i>	Shiv Grewal, Senior Investigator, NIH/NCI, Center for Cancer Research
14	12/9	<i>Xenopus</i> development	Donald Brown, Carnegie Institution, Dept. of Embryology
15	12/16	<i>Tetrahymena</i> splicing	Student