

## MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY

### Focus:

The members of the Department of MCDB are broadly interested in how organisms, cells, molecules, and genomes function, develop, and evolve. The members of the group share technical approaches such as recombinant DNA, genetics, biochemistry, and specialized imaging. The group shares a common intellectual approach that emphasizes mechanistic and experimental strategies to investigate a diverse set of biological problems.

### Required Courses:

Year 1, Term1:

**PROSEMINAR:** This is a mandatory no credit course designed to familiarize entering students with the research of each MCDB faculty. It must be taken by all new incoming Ph.D. students as well PIBS MCDB primary students.

**PIBS 501/503:** PIBS students will take PIBS 501 which introduces PIBS students to the various Ph.D. programs plus discusses issues of ethics in research. MCDB direct students will take PIBS 503 which is the part of PIBS 501 that covers issues in research ethics.

2 of the following 4 courses: Biological Chemistry 550 (Protein Structure), Cell and Developmental Biology 530 (Cell Biology), Human Genetics 541 (Gene Structure), and Neuroscience 601 (Principles of Neuroscience I)

Research Rotation

Year 1, Term 2:

**MCDB 615 :** This course will mainly involve reading, discussing and presenting primary research papers. A student MUST receive a grade of a B- or higher in order to fulfill Department requirements.

Research Rotation

### Other Courses:

Appropriate specialty courses decided upon by the student in consultation with the advisory faculty can be taken during any term other than Term1 of Year1.

### Teaching:

Each student is required to serve as a Graduate Student Instructor (Teaching Assistant) for two semesters prior to receipt of the Ph.D. **Typically** students will serve as a TA one term of Year2 and then another term after the 2<sup>nd</sup> year. The quality of the performance as a Graduate Student Instructor will be part of the evaluation of students for advancement to Ph.D. Candidacy.

### Seminar:

Each student presents a seminar to the Department. This seminar is normally presented in the 1<sup>st</sup> Term of the 2<sup>nd</sup> year. The seminar will typically be a presentation of one of the student's research experiences, and usually will include plans for the future, but can also cover other material.

The Preliminary examination consists of a written and oral exam. The Prelim examination is prepared, administered, and evaluated by the Prelim Committee.

Materials for the written documents consist of several research questions. The student chooses one question and proposes a set of experiments that incorporates several different conceptual and/or methodological approaches. This document should be written in the form of a grant proposal of no more than 20 pages (double-spaced) The student defends the proposal before the Prelim committee.

The average time to complete a degree is 5.5 years