1865 THE UNIVERSITY OF MAINE

FUNCTIONAL GENOMICS

Program of Study

This is an integrated five-year program leading to an interdisciplinary Ph.D. in Functional Genomics. Students receive training in the biological, physical and computational sciences through a combination of core and advanced courses, intensive workshops, and research seminars. Emphasis is placed on a high quality research environment and a tutorial relationship between the student and her/his mentors and program committee. Central to the students' training in interdisciplinary research will be the use of a paired mentoring system, a concept referred to as **twinning.** The primary mentor plays a role similar to the traditional graduate advisor and comes from the student's primary area of research. The secondary mentor comes from a second discipline, and each student develops a research project dependent upon interdisciplinary collaborations. Twinning is a requirement for the students in this program and any faculty member, regardless of primary institutional affiliation.

Research Areas

Control of development in model organisms

- genetic and molecular mechanisms controlling mouse and zebrafish development
- mouse models of human disease
- neurogeneti
- molecular aspects of angiogenesis
- gene-gene interactions in complex traits

Computational sciences, bioinformatics and biostatistics

- automated extraction of spatial information from digital imagery
- information management and display concepts applied to genome data
- systems for data integration
- statistical genetics and mathematical modeling of complex traits
- mathematical physiology

Surface science and biosensor development

- microsensors,biosensors and instrumentation and their fabrication
- surface,interfacial,and thin film properties of materials
- analysis of complex molecules by mass spectrometry
- DNA detection on biochip arrays

Students

The students move from a base curriculum giving coverage in the biological, physical and computational sciences to an interdisciplinary thesis project requiring two mentors from two different disciplines. Throughout this process students are in constant contact with other students and with faculty, learning to communicate easily in the different "languages" scientists use. Finally, the degree program provides the bridge linking a set of "virtual" interdependent research Centers of Excellence in: genetics/genomics; cell/molecular biology; biophysics/bioengineering; and computational biology/bioinformatics.

Applying

Prospective students will apply directly to the Program through the University of Maine Graduate School. Top candidates will be brought to Maine for an on-site interview. Prior to their arrival candidates will be asked to select specific faculty with whom they wish to interview. During their visit, students tour the research centers and facilities and participate in small group discussion sessions with faculty and students. All students admitted to the program receive stipends, health insurance, and tuition support. Current stipends are $30,000 per year.

Correspondence

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Graduate Faculty

For more information on Faculty Members go to: www.umaine.edu/genomics