

COMPUTATIONAL MEDICINE, PRE-DOCTORAL TRAINING PROGRAM

The Pre-Doctoral Training Program in Computational Medicine, funded by the National Institute of General Medical Sciences under Award Number T32GM119998, supports selected trainees from the departments of Biomedical Engineering and Applied Mathematics & Statistics.

Students chosen for the Ruth L. Kirschstein National Research Service Award institutional training grant will learn through a combination of focused coursework and dissertation research alongside computational medicine training program faculty mentors from across the Johns Hopkins Whiting School of Engineering and the School of Medicine. The program is designed to prepare graduates to fill the growing need for researchers trained in computational medicine in both industry and academia.

Trainees will be part of an exceptional and distinctive community of students and faculty exploring the possibilities of computational medicine. Trainees will learn how to develop models of biological systems in health and disease, constrain these models using data collected from patients, and apply models to deliver improved diagnoses and therapies.

Admission

To Apply

Prospective trainees should apply to the PhD programs of the Departments of Biomedical Engineering (<https://www.bme.jhu.edu/>) or Applied Mathematics and Statistics (<https://engineering.jhu.edu/ams/graduate-studies/admissions-criteria-admission-process/>), indicating an interest in pursuing pre-doctoral training in Computational Medicine.

Program Requirements

Program Milestones

Year One

By the end of the first year, trainees will complete the following:

- EN.580.631 Introduction to Computational Medicine: Imaging and EN.580.633 Introduction to Computational Medicine: The Physiome
- EN.580.688 Foundations of Computational Biology and Bioinformatics or EN.553.650 Computational Molecular Medicine or EN.601.649 Computational Genomics: Applied Comparative Genomics or EN.601.749 Advanced Computational Genomics: Applied Comparative Genomics
- Required home department course work
- At least one CM research rotation in a laboratory of participating Program Faculty
- Choose a research mentor from the Training Program Faculty (<https://icm.jhu.edu/academics/graduate-curriculum/pre-doctoral-training-program-in-computational-medicine/training-program-faculty/>)

Year Two

By the end of the second year, trainees will complete:

- One clinical rotation in the laboratory of a clinician-researcher who works with patient data
- Graduate Board Oral (GBO) examination *or* Doctoral Board Oral (DBO) examination as required by the trainee's home department

Year Three and Beyond

- Graduate Board Oral (GBO) examination *or* Doctoral Board Oral (DBO) examination as required by the trainee's home department (If not completed in Year 2)
- Participate in planning periodic Computational Medicine conference (optional)
- Thesis Defense (approx. 60 months from matriculation)

Additional Requirements

Each year in the program, trainees will attend the CM Journal Club, the Distinguished Seminars in Computational Medicine, and the annual ICM Retreat.

Note that trainees will need to also satisfy all degree requirements of their primary doctoral program.