# INTERDISCIPLINARY QUANTITATIVE BIOLOGY - GRADUATE CERTIFICATE

The Interdisciplinary Quantitative Biology (IQ Biology) PhD Certificate Program is designed for students in life sciences, engineering, computer science, and applied mathematics who are interested in learning the essential competencies of researchers who work and collaborate effectively across disciplines, and want to unravel the complexity of biological systems. These competencies are attained in a number of ways, including integrative coursework, lab rotations, team science, internships and outreach activities.

## Requirements

### Core Courses

These courses cover cutting-edge quantitative techniques, and include one course in the fall and two courses in the spring. IQ Biology core courses count simultaneously toward a student's chosen academic department's electives. Core courses have included topics like quantitative optical imaging, mathematical and computational biology, bioinformatics and genomics, biologically-inspired multi-agent systems, and biophysics.

### Gap-Filling Courses

Students take one to three courses outside of their primary discipline(s). These courses allow students to explore other areas of quantitative biology and fill any "gaps" in their background to benefit their future interdisciplinary research.

### Lab Rotations

Students rotate through four different research labs in at least two different disciplines. These rotations allow students to explore their interests, learn new techniques and work with prospective thesis advisors.

### Additional Coursework and Research

During the second year, students begin taking the courses required by their chosen academic department, and those advised by their departmental thesis committee.

### Engagement

While pursuing the PhD degree, IQ biology student remain engaged with the IQ biology program by:

- Volunteering in academic outreach and teaching projects.
- Pursuing industry or government internships.
- Attending seminars with the IQ biology community, as well as meeting with the speaker.
- Developing and presenting research in a student-run IQ biology symposium on campus.
- Mentoring or tutoring new IQ biology students.
- Attending social gatherings held for the entire IQ biology community.

After completing all program requirements, graduating students will receive a certificate in Interdisciplinary Quantitative Biology in addition to their PhD from their chosen academic department.