QB 827, *Problems in Quantitative Biology*

QB 827*, Problems in Quantitative Biology* (2 credits), will be offered every fall semester. Faculty teams of research collaborators will develop teaching and learning modules that address specific themes (e.g., protein structure prediction, enzyme dynamics, genomes and information, and metabolic networks). Each module will be taught from biological and non-biological perspectives, and will promote cross-training and participation of all students. Student teams—assembled by the instructors to maximize scientific background diversity—will be assigned projects that involve designing experiments using quantitative approaches to solve problems related to the course modules. The instructors will pick a seminal, but understandable to all, paper for each module and students will be asked to propose specific methodologies to address these problems. Validated instruments such as the Biology Field Test and the Physics Field Test (Educational Testing Service) will be given to each student to generate baseline data about students' knowledge and comprehension background in physical, computational, and biological sciences. During this course, students will

(i) Function as an interdisciplinary graduate student team and use the opportunity to cross-train each other.

(ii) Propose a strategy to solve an interdisciplinary research problem and demonstrate their ability to apply, analyze, and synthesize information in an interdisciplinary context.

(iii) Meet and interact with many QB faculty members who will be prospective mentors for their interdisciplinary Ph.D. research.