Quantitative Analysis Course Options

Below is a list of suggested courses that can be taken to fulfill the quantitative analysis course requirement. Permission to use other classes that cover similar content can be requested and is subject to approval.

BIOL 519: Data Science for Biologists (Winter - 4 credits)
Explores, analyzes, and visualizes biological data sets using scientific computing software. Focuses on the foundations of data wrangling, data analysis, and statistics, particularly the development of automated techniques that are reproducible and scalable to large data sets.

CONJ 526: Introduction to Systems Biology and Quantitative Approaches to Biomedical Sciences (Winter - 1.5 credit)
Covers philosophy of systems biology, experimental design, and the linkages between discovery and hypothesis-driven science. Reviews quantitative systems biology tools for genomics, proteomics, modeling and data integration, and emerging technologies.

MCB 536: Tools for Computational Biology (Autumn - 3 credits)
Introduces computational research methods to graduate students in biomedical science and related disciplines. Provides a survey of the most common tools in the field. Students should have foundational knowledge in reproducible computational science, and can continue learning relevant tools to suit specific research interests.

NEURO 545: Quantitative Methods in Neuroscience (Winter - 3 credits)
Discusses quantitative methods applicable to the study of the nervous system. Revolves around computer exercises/discussion of journal papers. May include linear systems theory, Fourier analysis, ordinary differential equations, stochastic processes, signal detection, and information theory. Prerequisite: NEURO 501, NEURO 502, NEURO 503, or permission of instructor. Instructors: Rieke Offered: jointly with P BIO 545.

UCON 510: Introductory Laboratory Based Biostatistics (Summer - 2 credits)
Introduces methods of data description and statistical inference for experiments. Covers principles of design and analysis of experiments; descriptive statistics; comparison of group means and proportions; linear regression; and correlation. Emphasizes examples from laboratory-based biomedical sciences, and provides demonstrations using standard statistical programs.