BIPH - BIOPHYSICS

BIPH697 Protein Engineering (3 Credits)
Covers the fundamentals of protein engineering and its applications in medicine, chemical processes, and energy. Topics will include the structure and function of biological molecules, rational design and directed evolution, construction of protein and peptide libraries, protein screening platforms, methods for characterizing structure and function of biological molecules. Scientific literature will be used to highlight key discoveries and current work in protein engineering.
Cross-listed with: CHBE697.
Jointly offered with: CHBE497.
Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department.
Credit Only Granted for: CHBE497, BIOE489R, BIPH697, ENCH648P or CHBE697.
Formerly: ENCH648P.

BIPH698 Biophysics Seminar (1 Credit)

BIPH699 Research in Biophysics (2 Credits)
Supervised research in biophysics laboratories. Rotations through several laboratories prior to a choice of laboratory for a research assistantship.
Restriction: Must be in one of the following programs (Biophysics (Master's); Biophysics (Doctoral)).
Repeatable to: 8 credits if content differs.

BIPH703 Introduction to Nonequilibrium Statistical Physics (3 Credits)
Analysis and microscopic modeling of systems away from thermal equilibrium. Linear response theory, ergodicity, Brownian motion, Monte Carlo modeling, thermal ratchets, far-from-equilibrium fluctuation relations. Introduction to the theoretical tools of nonequilibrium phenomena and their application to problems in physics, chemistry and biology.
Prerequisite: PHYS603 or CHEM687; or permission of instructor.
Cross-listed with: CHEM703, CHPH703, PHYS703.
Credit Only Granted for: BIPH703, CHEM703, CHPH703, or PHYS703.

BIPH704 Cell Biology from a Biophysical Perspective (3 Credits)
An approach to cell biology by focusing on mechanisms and unifying paradigms. It will not assume a great deal of factual biological knowledge, but will expect a background that prepares students to think quantitatively and mechanistically.
Recommended: BSCI330, PHYS121, and PHYS122.
Cross-listed with: BIOL704.
Jointly offered with: BSCI404.
Credit Only Granted for: BSCI404, BIOL704, BIOL708O, or BIPH704.
Formerly: BIOL708O.

BIPH799 Master's Thesis Research (1-6 Credits)

BIPH898 Pre-Candidacy Research (1-8 Credits)

BIPH899 Doctoral Dissertation Research (1-8 Credits)