

BIOCHEMISTRY (BCHE)

BCHE 2280 Physical Models of Biological Systems

Classic case studies of successful reductionistic models of complex phenomena, emphasizing the key steps of making estimates, using them to figure out which physical variables and phenomena will be most relevant to a given system, finding analogies to purely physical systems whose behavior is already known, and embodying those in a mathematical model, which is often implemented in computer code. Topics may include bacterial genetics, genetic switches and oscillators; systems that sense or utilize light; superresolution and other new microscopy methods; and vision and other modes of sensory transduction.

Fall

Also Offered As: PHYS 2280

1 Course Unit

BCHE 2999 Undergraduate Research Projects

Independent Research.

Fall or Spring

1-2 Course Units

BCHE 3000 Senior Research Projects

Research in standing faculty groups in any School for special cases beyond participation in BCHE 404. Proposal required before the end of the add period in any given semester.

Fall or Spring

1 Course Unit

BCHE 4597 Biochemistry Laboratory

Students participate in research projects associated with the laboratories of individual faculty investigators. Students commit a minimum of 15 hours/week to original research. In addition to research and class assignments, students attend class meetings to present and discuss their own research and related work. Strong speaking and writing skills are required. Each student must contact the course instructor with information regarding research group (faculty principal investigator) in the spring term before the fall term of BCHE 404. BCHE 404 is a year-long course required for the Biochemistry major. Majors complete 2 cu of BCHE 404. Initial registration must occur in Fall term, with 0 cu earned after Fall term and 2 cu earned after Spring term. BCHE 404 is taken in a student's final year as an undergraduate.

Fall or Spring

Corequisite: CHEM 5510

1 Course Unit

BCHE 4597A Biochemistry Laboratory

Students carry out mentored research broadly relevant to biomolecular science within the groups of individual faculty investigators on or near the Penn campus. Students commit a minimum of 15 hours/week to original research in their host laboratories. In addition to research and assignments, students meet to present and discuss scientific research. Course activities and assignments complement the research effort. Developing effective scientific presentations is an emphasis. Each student must contact the course instructor with information regarding research group (faculty principal investigator) in the spring term prior the fall term of BCHE 4597A. BCHE 4597A and BCHE 4597B is a year-long, 2 cu course required of the Biochemistry major. The course is taken in a Biochemistry major's final year as an undergraduate.

Fall or Spring

1 Course Unit

BCHE 4597B Biochemistry Laboratory

Students carry out mentored research broadly relevant to biomolecular science within the groups of individual faculty investigators on or near the Penn campus. Students commit a minimum of 15 hours/week to original research in their host laboratories. In addition to research and assignments, students meet to present and discuss scientific research. Course activities and assignments complement the research effort. Developing effective scientific presentations is an emphasis. Each student must contact the course instructor with information regarding research group (faculty principal investigator) in the spring term prior the fall term of BCHE 4597A. BCHE 4597A and BCHE 4597B is a year-long, 2 cu course required of the Biochemistry major. The course is taken in a Biochemistry major's final year as an undergraduate.

Fall or Spring

1 Course Unit