

# ME.100 (BIOPHYSICS AND BIOPHYSICAL CHEMISTRY)

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## Courses

**ME.100.601. Scientific Foundations of Medicine: Macromolecules.**

**ME.100.699. Biophysics Elective.**

**ME.100.705. Computer Modeling Of Biological Macromolecules: Lecture.**

**ME.100.710. Biochemical and Biophysical Principles. 1.5 Credits.**

**ME.100.714. Single-Molecule Single-Cell Biophysics. 1 Credit.**

This elective course offers an introduction to the field of single molecule and single cell biophysics to graduate students in Johns Hopkins University and will be delivered in the School of Medicine. We will examine technologies such as single molecule fluorescence and force measurements, super-resolution imaging and single cell fluorescence detections that enable high precision molecular visualizations in vitro and in cells.

**ME.100.715. Proteins and Nucleic Acids II. 3 Credits.**

Critical reading and analysis of primary source literature is vital to scientific discourse and discovery. Students will be responsible for analyzing and critiquing papers in diverse topics and systems ranging from replication, transcription, and translation to enzyme mechanism, drug resistance, innate immunity, and signaling. Methods covered will include structural, biochemical, single-molecule, single-cell, and genomic approaches. Students will deliver analytic presentations on at least two ground-breaking papers relevant to these areas, and will be expected to actively participate in class discussion of experimental methodology and logic of other papers assigned in the course.

**ME.100.716. Analysis of Macromolecules. 2 Credits.**

The course will cover (1) macromolecules, (2) physical chemical principles dictating their biological behavior, and (3) methods to study them. Lectures will focus on practical application of the methods, experimental design, data collection, and elementary aspects of data analysis.

**ME.100.801. Biophysics Research. 1 - 18 Credits.**

Thesis research

**ME.100.804. in Macromolecular Structure and Function I. 1 - 10 Credits.**

This is the first part of a seminar course covering a variety of topics involving the structure and function of proteins and nucleic acids. Recent topics have included: protein folding, evolutionary significance of introns, protein-DNA interactions, solution structure of peptides, prospects for designing novel proteins, and two-dimensional NMR.

**ME.100.807. Research. 1 - 10 Credits.**

Laboratory Research