

Program Learning Objectives – Medical Biophysics PhD

The goal of the PhD program in Medical Biophysics is to train the next generation of structural biologists and biophysicists a) to be proficient in the latest experimental and theoretical methods, b) to apply these methods to answer fundamental biomedical questions, c) to become responsible investigators eager to translate their findings.

Specific learning objectives on the way to achieve these goals include:

- Understand the chemical structure of the major classes of biomolecules.
- Understand the physicochemical principles of molecular interactions.
- Be familiar with the physical principles and applications of important biophysical techniques.
- Understand basic techniques of signal processing, data analysis, and data fitting when using biophysical or other techniques.
- Be familiar with the ways molecular structure can help identify the cause of human diseases and how this information can inform therapeutic efforts.
- Learn how to identify basic biophysical and molecular structural questions whose answers can be successfully translated into treatment of important human diseases.
- Know how to communicate basic research findings to colleagues in different fields and lay persons to help inform the public and help translate results into animal models and the clinic.
- Attain a deep understanding and appreciation of biology in order to be able to identify important biomedical questions that can be addressed by biophysical methods.

The above program learning objectives not only set the expectations of the students in the program but also help participating faculty mentors create courses and guidance for the students to achieve their goals. Combined these learning objective have the goal to create future leaders in structure biology and biophysics that are excellently trained and excited to work on important medical problems.