

Keck School of Medicine of USC

Medical Biophysics (Ph.D.) Learning Objectives

Upon graduation from this program, students will be able to:

1. Illustrate the chemical structure of the major classes of biomolecules.
2. Explain the physicochemical principles of molecular interactions.
3. Describe the physical principles and applications of important biophysical techniques.
4. Apply basic techniques of signal processing, data analysis, and data fitting when using biophysical or other techniques.
5. Discuss the ways molecular structure can help identify the cause of human diseases and how this information can inform therapeutic efforts.
6. Conduct basic biophysical research towards completion of a doctoral thesis.
7. Formulate basic biophysical research questions whose answers can be successfully translated into treatment of important human diseases.
8. Communicate 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.
9. Write effective grant proposals.
10. Write and illustrate scientific publications (e.g. papers, PhD thesis) to effectively communicate research findings to an expert audience.
11. Assess criticism to substantially improve grant proposals and scientific publications.