SIU Southern Illinois University CARBONDALE

Introduction to Biological Physics
PHYS 476B- Spring 2020

Goal: Learn experimental and theoretical tools to interpret biophysical concepts and tackle biological problems, first step towards Interdisciplinary Research.

Why Biological Physics:

1. Basics of biology, theories to understand evolution, robustness, and nonequilibrium systems, etc.
2. Experimental tools for life science such as optical microscopy, microwaves, gamma, X-Rays, NMR, etc.
3. Spectroscopy techniques such as vibration spectroscopy (Raman and IR), atomic spectroscopy, mass spectroscopy, etc.
4. Theories to interpret experimental methods, computational and mathematical methods.
5. Complementary experimental tools such as bioconjugation, biomedical physics tools, high-throughput techniques, etc.
6. Understanding radiation damage to DNA, proteins, and cellular systems.

Methods of Instruction: various techniques will be followed such as interactive lectures, direct & inquiry-based, problem solving, demonstrations, etc.

Prerequisite: *PHYS 203 A, B or PHYS 205 A, B with a grade of C, MATH 150 or concurrent enrollment.* No prior knowledge of life science is expected.