The goal of this course is to provide a solid foundation in protein structure and function. At the end of the course, students should be able to understand, explain, and implement approaches for the study of proteins. The course is taught in a modular format, by a team of faculty, each with expertise in the content of their module. Some modules will be entirely lecture. Some will include demonstrations, lab or virtual experiments, some will include bioinformatics exercises online. Prerequisite is concurrent registration for BMB7320 and permission of instructor.

**BMB 7320 – PROTEIN STRUCTURE AND FUNCTION**  
Course director: Dr. Ladislau C. Kovari

Days: Mondays and Wednesdays  
Time: 2:30-3:45 pm  
Location: BMB Lecture Room

**January 9 – February 22, Module 1:** Introduction to protein structure and enzyme kinetics, Drs. Ladislau Kovari and Bharati Mitra  
- Physico-chemical properties of amino acids  
- Primary, secondary, tertiary, and quaternary structure of proteins  
- Steady state enzyme kinetics  
- pH dependence of kinetic parameters  
- Irreversible inhibitors  
- Allosteric regulation of enzymatic activity

**February 27, Exam 1, Module 1**

**March 1 – March 22, Module 2:** Enzyme mechanisms and protein engineering, Dr. David Evans  
- Catalytic theory  
- Enzyme mechanisms  
- Protein engineering

**March 27, Exam2, Module 2**

**March 29 – April 26, Module 3:** Experimental techniques to study protein structure and function, Drs. Zhe Yang, JianJun Wang, William Brusilow  
- X-ray crystallography  
- Fluorescence spectroscopy  
- NMR spectroscopy  
- Proteins in stem cell production  
- Mass spectrometry and proteomics  
- Structure of membrane proteins  
- Function of membrane proteins  
- Histone modifying and binding proteins

**May 1, Exam 3, Module 3**