

The goals of this course are to provide students with an introduction to protein structure and to demonstrate how knowledge of the three-dimensional structures of proteins affords an in-depth understanding of biological processes. A primer on structure determination by x-ray crystallography, electron microscopy and NMR spectroscopy will also be given.

*4 credit hours*

*Lectures on Mon. and Wed., 10:30 – 12:00. Discussion session on Fri., 10:30 – 12:00.*

**Course begins on Mon., Sept. 10th.**

*Recommended text: "Introduction to Protein Structure" by Branden and Tooze. The book will be available at the NYU Medical Bookstore and in the library.*

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*Suitable for 1st- and 2nd-year students*

## **Topics**

- Principles of protein structure and folding
- Enzyme structure and mechanism
- Molecular machines
- Membrane proteins
- Protein-nucleic acid recognition
- Histone modifications and regulation of gene expression
- Ligand-receptor recognition
- Protein-protein interactions in signal transduction
- Protein-protein interactions in immune recognition
- Chaperone-assisted protein folding
- Introduction to x-ray crystallography and electron microscopy
- Protein structure determination by NMR spectroscopy
- Analysis of proteins by mass spectrometry
- Computational approaches to protein structure

## **Instructors**

- Dr. Joel Belasco
- Dr. Richard Bonneau
- Dr. Stevan Hubbard
- Dr. Alexej Jerschow
- Dr. Xiangpeng Kong
- Dr. Michelle Krogsgaard
- Dr. Moosa Mohammadi
- Dr. Thomas Neubert
- Dr. David Ron
- Dr. David Stokes
- Dr. Rui-Ming Xu
- Dr. Da-Neng Wang