INDIANA UNIVERSITY

Indiana University

Course: CHEM-T 580 Physical Biochemistry

Format: Online

Date: June 3, 2019-July 27, 2019

Instructor: Dr. Yu Kay Law, lawy@iue.edu

Course Description

An illustration of the physical principles underpinning the structure and dynamics of biomolecules, as well as experimental and computational methods used to study biochemical systems.

Learning Outcomes

Upon completion of this course, students will be able to:

- Describe the structure of proteins and nucleic acids (PGE 1)
- Analyze the interactions underpinning the conformations and structures of proteins and nucleic acids (PGE1, 2)
- Describe the principles and mechanisms associated with protein folding (PGE1)
- Explain and analyze the thermodynamics associated with ligand binding (PGE1, 2)
- Describe the photophysics of biological macromolecules (PGE1)
- Describe and explain the principles associated with biophysical methods used to study macromolecular structure and dynamics (PGE1, 3)
- Compare, contrast, and propose the application of different biophysical methods (PGE1, 2, 5).

Learning Materials

Kuriyan, Konforti, and Wemmer, *The Molecules of Life: Physical and Chemical Properties*, W. W. Norton (2012).
Hammes and Hammes-Schiffer, *Physical Chemistry for the Biological Sciences (2nd Ed)*, Wiley (2015).

Assessment

Exams: 27%

Problem Sets: 27%

Self-introduction: 1%

Discussions: 14%

Quick Checks: 20%

Literature Presentation: 11%