

TxCETP Course Component:

Protein Folding and Shape “Pipe Cleaners, Perms, and Mad Cows”

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I. Introduction

Overview of Course Component:

The protein folding course component is designed to provide students with an understanding of how protein structure is related to shape, which is related to function. It will also provide opportunities for students to apply knowledge of protein structure to explain important physiological processes which are relevant to their daily lives.

Objectives of Course Component:

The student is expected to understand the four levels of protein structure, construct models that simulate protein folding, evaluate the accuracy of such models, understand why protein shape is critical to the induced fit model of enzyme action, apply these concepts to differing proteins, and relate how these concepts are relevant to their lives.

Overall Time Frame for the Course Component:

Approximately one, 50-minute class, plus 10-20 minutes in the following class.

Prior Knowledge:

Assigned readings on basic protein structure and enzyme function, short lecture covering this information, or both. The Course Component may work best if the students are familiar with amino acids, peptide bonds, proteins, hydrogen bonding, and enzyme actions.