

Youth Scholars Institute

2010 Program

TITLE: The Biochemistry of Enzymes

INSTRUCTOR: Walter A. Patton, PhD, Associate Professor of Chemistry

DESCRIPTION: Without knowing why or how many things worked, ancient man exploited enzymes to make beer, leaven bread, and make cheese. Today, both animal- and plant-derived enzymes are used for the industrial processing of food-stuffs, for clinical diagnostic tests and even to make laundry detergents more effectively remove protein and grease stains. With few exceptions, enzymes are proteins. Some enzymes are very sensitive to conditions like temperature and pH, whereas others have protein characteristics that allow them to operate in the highly acidic environment of a stomach or the elevated temperatures of a hot spring or deep ocean thermal vent. During your week in this program, students will (a) learn about some of the many uses for enzymes, (b) purify an enzyme, and (c) use various enzymes to synthesize a nucleic acid, perform both diagnostic and analytical tests and process raw materials into a commercial product. On the last day of the week, students will present their findings to peers in other programs.