All of the FWS appointments are for 14 hours a week and entail an undergraduate research experience with a USF faculty member in the specific discipline/topic described below. Students appointed to these positions also are REQUIRED to attend 1 hour of professional development and training each week with Dr. Pollenz and the OUR staff in the Office for Undergraduate Research. Students who complete these appointments will gain a significant competitive advantage and will have an opportunity for presentation of the project at the USF Research Colloquium in April 2014.

Position 1
Title: FWS – Undergraduate Research – Integrative Biology Department
Summary: The project name/title is “Carbon fixation by deep-sea hydrothermal vent bacteria”. Researchers are trying to understand how deep-sea bacteria fix carbon dioxide. The biochemistry of carbon fixation has been 'figured out' for plants, which are primary producers for ecosystems wherever sufficient light is present. However, at the bottom of the ocean, where light is not present, and the bacteria that act as primary producers are exposed to toxic and life-threatening circumstances on a regular basis, clarification of which pathway the organisms use for carbon fixation would be helpful for understanding early life and the ecophysiology of carbon fixation in ANY habitat, extreme or not.

Position 2
Title: FWS – Undergraduate Research – Education Department
Summary: The project name/title is “What Do Children's Photographs Tell Us About their School Experiences?” The goal of this research is to see schools through children's eyes. For the past 10 years, my students and I have been collecting photography data with preschool and elementary school children who attend different types of schools in the U.S. (e.g., successful versus unsuccessful public schools, Catholic School, etc.) and a primary school in South Africa. Now we are coding and analyzing what the photographs tell us about those schools. Some of the key differences to date include how much children talk about/photograph academics versus play, whether children photograph teachers or other children they call "friends" etc. We welcome you to become our research partner.

Position 3
Title: FWS – Undergraduate Research – Cell Biology Department
Summary: The project name/title is “Treatment of Parkinson’s disease cells with natural metabolites”. Mitochondrial dysfunction is an important contributor to pathophysiology of several neurodegenerative diseases, including Parkinson’s disease. The student will determine if treatment with chemically modified metabolic intermediates will improve mitochondrial function in human tissue cultured cells modeling Parkinson’s disease. The student will determine if the metabolic intermediates improved mitochondrial function by measuring mitochondrial membrane potential, levels of ATP and reactive oxygen species produced, and the rate of cellular oxygen consumption.
Position 4
Title: FWS – Undergraduate Research – Music Department
Summary: The project name/title is “Using the iPad as a Musical Instrument with High School Special Needs Students”. The purpose of this research is to explore the impact of using the iPad as a musical instrument in the teaching and learning of music with a population of high school special needs students. Research suggests that the most cited criterion for being a “good musician” among high school students is being able to play an instrument (Randles, 2011). However, musical instruments require a great deal of technical facility, which are to some extent unachievable by many special needs students. This study is an exploration of what the touchscreen interface of the iPad, and the host of software applications available for musical performance, might mean for this population. The creative process of participants and the role of music as a meaning making enterprise will be examined, among other phenomena.

Position 5
Title: FWS – Undergraduate Research – Geography Department
Summary: The project name/title is “Florida Hurricane Project”. How have hurricanes impacted Southwest Florida between the Tampa Bay region and Naples? The student will establish a Southwest Florida hurricane database that documents meteorological and climatological characteristics, oceanographic conditions, and morphologic impacts for all recorded tropical storms and hurricanes making landfall along the Southwest Florida coast.

Position 6
Title: FWS – Undergraduate Research – College of Medicine
Summary: The project name/title is “Characterization of a new mouse for the treatment of mood disorders”. Mood disorders like major depressive disorder and post-traumatic stress disorder have been gaining interest of many researchers. Genetic factors which contribute to these disorders are just recently being identified. We generated a new mouse model which we hope will mimic a mood disorder phenotype. This project would include assisting in the full characterization of this mouse’s phenotype and pathology.

Position 7
Title: FWS – Undergraduate Research – Community Health Science
Summary: The project name/title is “Evaluation of a Family Dependency Treatment Court (FDTC)”. The 13th Judicial Circuit (with Drug Abuse Comprehensive Coordinating Office and University of South Florida) was awarded a Family Drug Court grant for its Family Dependency Treatment Court (FDTC) to expand treatment for parents with a substance use disorder in Hillsborough County, FL, who seek to reunify with their children. The University of South Florida’s Florida Mental Health Institute is conducting the program evaluation that includes both a client outcome (i.e., baseline, 6- and 12-month interviews) and process evaluation. Our work study student will ask additional questions to clients during the course of face to face interviews.