

**CHEMISTRY Departmental Seminar**

Spring 2019  
CHEM 285/191 Schedule  
Tuesdays at 4:30-5:45PM  
Room Duncan Hall 250

February 26<sup>th</sup>, 2019

**Professor Hubert Muchalski**  
California State University, Fresno

***Kinetic Studies of Lipid and Hydrocarbon Peroxidation***

Free radical oxidation (autoxidation) has been the focus of mechanistic studies for decades because of its importance in degradation of various organic materials and biomolecules. Lipids and sterols are particularly prone to this reaction, and the formation of oxidized lipid products is frequently found to accompany many human health conditions and pathologies such as heart disease, environmental exposures, and neurodegenerative disorders. Although natural antioxidants such as alpha-tocopherol are excellent inhibitors of free radical chain reaction in solution and promising treatments in cell cultures and some animal models, they have generally been disappointing in clinical studies. This talk will highlight research in kinetic studies of tocopherol-mediated peroxidation of polyunsaturated fatty acids and sterols. Synthesis of deuterium-reinforced model substrates and the effects of heavy isotope substitution on the rate of tocopherol-mediated peroxidation will be presented.