**A Suzuki Coupling Reaction for The Che232 Lab**

**Presenter: James Wheeler (Chemistry)**

**Faculty Mentor: Dr. David Dehm (Chemistry)**

A major objective of “Green Chemistry” is to provide a more modern chemical experience in the laboratory along with reducing the amount of waste generated and make the lab safer for our students. The latest effort is the continuance to update the chemical reactions in the DHE 232 Organic Chemistry Lab by employing a “water-based” Suzuki Coupling Reaction. The 2010 Nobel prize was awarded to Heck, Negishi, and Suzuki for the palladium-catalyzed cross coupling reaction.  This reaction has gained wide acceptance in industry where it is used in large scale reactions to make drugs (naproxen, 5-HT1a Agonist), agricultural chemicals (Boscalid® fungicide, Prosulfuron® herbicide), and chemicals for electronics (Cyclotene® monomer). The reaction chosen is carried out in water in an open flask with the mild base sodium carbonate. Benzeneboronic acid is coupled to bromobenzoic acid isomers to give biphenylcarboxylic acids. The water-soluble palladium chelate catalyst undergoes 10,000 reaction cycles. Aspects of the reaction are used to teach green chemistry principles, catalysis, crystallization, isomer reactivity, and IR and NMR spectroscopic identification, and sustainability. A CHE232 lab pilot run is planned for 2020 fall semester.