Bio: Dave grew up on Vancouver Island, BC, and obtained both his B.Sc. (2004) and Ph.D. (2010) at the University of British Columbia in Vancouver. There he worked with Prof. Laurel Schafer on organozirconium chemistry and hydroamination catalysis. He then held a postdoctoral position McGill University (2010-2012), working with Prof. Bruce Arndtsen on a multicomponent approach to building conjugated organic materials. In 2012, Dave obtained an NSERC Postdoctoral Fellowship to work with Prof. John Bercaw and Dr. Jay Labinger at the California Institute of Technology (2012-2014) on tandem catalysis for alkane functionalization. He then joined GlaxoSmithKline's Catalysis Center of Excellence at Research Triangle Park, NC in 2014, and moved with the group to Pennsylvania in 2015. There he became group leader of the re-christened Chemical Catalysis group (2016-2018), as well as the Continuous Primary group (2017-2018) within Process Chemistry R&D. In 2019, Dave returned home as an Assistant Professor at the University of Victoria on Vancouver Island.

Abstract: The Leitch lab is focused on mapping chemical reaction space using high-throughput experimentation, and developing new catalysts and catalytic reactions for complex molecule synthesis. This talk will focus on our recent developments in two specific areas. First, we are applying high-throughput competition experiment studies to map the reactivity of substrates as a function of molecular structure for key transformations relevant to pharmaceutical synthesis. Combining these relative reactivity scales with easily calculated molecular descriptors, we have generated quantitative predictive models for nucleophilic aromatic substitution (S_NAr) and palladium-catalyzed cross-coupling. Applications of these models toward predicting reactivity and selectivity will be presented. Second, we are exploring the reactivity of bicyclobutane substrates as a platform for creating new multicyclic scaffolds relevant to drug discovery. Our recent work on a chemodivergent approach toward azabicyclohexanes and cyclobutenyl methanamides through the addition of imines to bicyclobutanes will be presented.