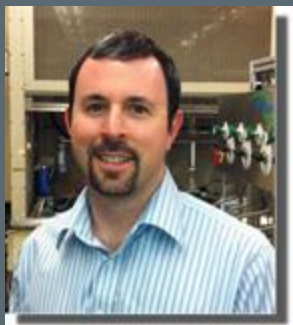


# ORGANIC CHEMISTRY SIGMA-ALDRICH SEMINAR



*Professor Matt Sigman*  
Department of Chemistry  
The University of Utah

## *Predicting and Optimizing Catalyst Performance Using Multidimensional Parameterization Approaches*

There has been remarkable progress in asymmetric catalysis since the inception of the field three decades ago and, chiefly, over the last decade. Because of this, asymmetric catalysis now provides chemical researchers in both academia and industry with the means to directly access useful enantiomerically enriched compounds. With advances in technology (i.e. high throughput screening), the identification of an asymmetric catalyst that promotes a transformation in high enantiomeric excess has been expedited. However, the approach to catalyst identification remains mainly empirical, wherein evaluation of a significant number of ligands, often structurally unrelated, is required to develop a mature chiral catalyst. Therefore, the central goal of our program is focused on developing general methods that facilitate the rapid design and optimization of new asymmetric catalysts for challenging, synthetically useful transformations. The lecture will focus on our recent efforts to evaluate structure-enantioselectivity relationships as a function of ligand structure to facilitate catalyst design and optimization. A particular focus will be on classic physical organic mechanistic tools in combination with multi-dimensional statistical approaches.

Tuesday, September 24, 3:30 pm  
Room 1315 Chemistry