# YSU Chemistry Seminar Series 2017-2018

## Upcoming Seminar

**Friday: 3/2/2018 3PM**

**Room 4043 Ward Beecher Hall**

***Refreshments Provided***

Dr. Brian J. Smith, Bucknell University

# *Controlling Structure: Mechanistic Study of Covalent Frameworks*

Designing materials based on molecular self-assembly achieves a structural precision and complexity unachievable with traditional top-down techniques. Covalent organic frameworks (COFs) are crystalline, polymer networks with designed topology and chemical functionality, permanent porosity, and high surface areas. These features are useful for a broad range of applications, including catalysis, water filtration, and energy storage devices. Despite this potential, current COF syntheses offer poor control over the material's morphology and final form, generally yielding insoluble and unprocessable microcrystalline powder aggregates. This is due, in part, to our limited understanding of COF nucleation and growth mechanisms. By studying the mechanisms of COF formation, we have stabilized colloidal boronate ester COFs and free-standing films, as well as identified limiting processes in the formation of 2D and 3D imine COFs.