



# Environmental Science Graduate Program Seminar Series

## Engineering for Sustainability by Learning from and Seeking Synergies with Nature

**Dr. Bhavik Bakshi**

**September 10<sup>th</sup>, 2021 | 2:00-3:00 PM**

**Smith Laboratory, Room 3150**



### Abstract

Sustainability requires the well-being of current and future generations. This needs solutions to pressing global challenges such as climate change, biodiversity loss, and resource depletion. Technologies for renewable energy, carbon capture and utilization, chemical recycling, and many others are considered to be essential for meeting these challenges. In this talk, we will argue that for engineering to make positive contributions to sustainability, it needs to shift its paradigm from dominating nature and taking it for granted as an infinite source and sink to a paradigm that accounts for the role of nature and respects its limits. We will demonstrate how seeking synergies with nature can result in innovative designs of manufacturing processes and landscapes that are economically feasible, socially desirable, and ecologically viable. Furthermore, learning from and emulating nature is essential for developing a sustainable and circular economy of plastics and a carbon-free chemical industry. We will identify challenges and opportunities in research and education that need to be addressed for realizing the paradigm shift toward an engineering for sustainability.