

Title: Math Models We Use (& Sometimes Shouldn't)

Location: Snell 212, **Time:** 9:10am—9:50am

Speaker: Ben Galluzzo, Shippensburg University

Abstract: Each day millions (if not billions!) of decisions are made based on the output from mathematical models. We'll discuss a few models that are not doing the job they were designed for, explore strategies for making these models useful and develop approaches for building meaningful math models.



Bio: Ben Galluzzo is an Associate Professor of Mathematics at Shippensburg University of Pennsylvania where his teaching and research interests focus on the integration of mathematical modeling into the K-16 curriculum. In 2016 he received the Mathematical Association of America's Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. Dr. Galluzzo is currently Chair of the SIAM Activity Group on Applied Mathematics Education.

Title: On Some Mysteries in Writing Numbers: The Mystery of Factoring)

Location: Snell 212, **Time:** 1:00pm—1:50pm

Speaker: Tom Garrity, Williams College

Abstract: The real number line is overall still quite mysterious. No one knows how best to describe real numbers. Most attempts come down to questions about factoring integers. But there are many ways to factor, each one of which gives rise to new descriptions of real numbers. We will be putting many of these attempts into one coherent framework. All of this is part of the study of Multi-Dimensional Continued Fractions, an area of mathematics that touches number theory, dynamical systems, automata theory and more. No background needed, beyond knowledge of fractions (and a bit of knowledge of matrices.)



Bio: Tom Garrity was an undergraduate at the University of Texas at Austin, a graduate student at Brown and a postdoc at Rice before moving to Williams in 1989, where he has been ever since, save for sabbaticals spent at the University of Washington, the University of Michigan (twice) and the University of Paris-Diderot. In addition to a number of research articles, he has written three books: *All the Mathematics You Missed: But Need for Graduate School*, *Algebraic Geometry: A Problem Solving Approach* (with many co-authors) and *Electricity and Magnetism for Mathematicians: A Guided Path from Maxwell's Equations to Yang-Mills*. He has also made three humorous math videos with Colin Adams: *The Great Pi/e Debate*, *The United States of Mathematics Presidential Debate*, and *The Final Smackdown; Which is Better, the Derivative or the Integral*. In addition to his research, he is developing with Lori Pedersen a series of videos on *Plato's Workshop*, the place where all geometry happens, to appear soon on YouTube.