

MATH DEPARTMENT COLLOQUIUM



Scott Steketee
21st Century Partnership for STEM
Education
Friday, Oct 21, 2016
1:00 – 2:00 PM
DERR 329

Enacting Functions from Geometry to Calculus to the Complex Plane

Geometry is one of the best opportunities that exists to learn how to mathematize reality....[N]umbers are also a realm open to investigation...but discoveries made by one's own eyes and hands are more convincing and surprising. (Freudenthal, Mathematics as an educational task, p. 407)

This colloquium presents an innovative technology-enabled enactivist approach to teaching function concepts. Based on Web Sketchpad and initially developed for secondary students, this visual sensorimotor approach can be extended to more advanced courses, providing students opportunities to enact differentiation, integration, vector operations, operations on complex numbers, and even to build a visual demonstration to determine the value of $e^{i\pi}$. In today's environment college courses increasingly expect students to be active learners, rendering activities such as these

particularly useful. Accordingly, the colloquium itself will actively involve participants in a number of such activities.

Bio: Mr. Steketeer is currently a Senior Scientist at the 21st Century Partnership for STEM Education and an adjunct instructor at the University of Pennsylvania Graduate School of Education. With advanced degrees in both education and computer science, He taught in Philadelphia public schools for 18 years, was an early adopter and developer of technology in math education, and worked on The Geometer's Sketchpad for over 20 years. His current passion (in addition to his family and bicycling) is to engage students in sensorimotor experiences through which they create, manipulate, and experience function concepts in ways that integrate geometry, algebra, and other advanced mathematical topics.