UNDERGRADUATE MATH SEMINAR

The next math seminar on the term will be

DATE: <mark>THURSDAY, October 21</mark>

Time &   **12:30 –** Refreshments in **Bailey 204**

Location: **12:55 – 1:45** Seminar in **Bailey 207**

In this seminar, Union College Professor of Mathematics, Emeritus, **Kimmo Rosenthal** will return to deliver the following talk:

Professor Kimmo Rosenthal

Title: The Joy of Abstraction

Abstract: "*The imagination is the only genius. It is intrepid and eager and the extreme of its achievement lies in abstraction.*" Wallace Stevens.

It may seem incongruous for the epigraph to a mathematics talk to be from one of the great American poets. However, while the ubiquity and utility of mathematics is widely acknowledged, its aesthetic appeal is much less so. In this day and age when relevance, applicability, and connections with other disciplines are touted as paramount, is there still a place for purely abstract mathematics viewed more as an intellectual art form? Can the old dictum "art for art's sake" be replaced by "math for math's sake"?

Abstraction has always appealed to me and indeed guided me. Yet, in some quarters it can provoke outright hostility. We shall take a brief historical tour of mathematical abstraction from the set theory of Georg Cantor (called a "corrupter of youth") to the mysterious emergence of Nicolas Bourbaki (the famous mathematician who never existed), and finally category theory, which earned the epithet of "abstract nonsense". There will be a gentle introduction to category theory accessible to anyone taking Math 199, including consideration of the question: can we talk about sets without mentioning elements?

BIO: *Kimmo Rosenthal retired from Union College a year ago after many, many years in the Mathematics Department. During that time he wrote numerous articles on category theory as well as two books. From 2000-2008 he served as the Dean of Studies. Upon his return to teaching he began to focus his energies on writing, including regularly teaching First-Year Preceptorial. He has since published over 25 literary articles, most recently essays on art and literature.*

Scenes from the Seminar – Join the Fun!

Left: **Professor Michelle Rabideau** from the University of Hartford speaking on Snake Graphs on October 14, 2021.

Right: Union math **Professor Jeff Hatley** describing ultrametrics in the October 7, 2021 seminar.
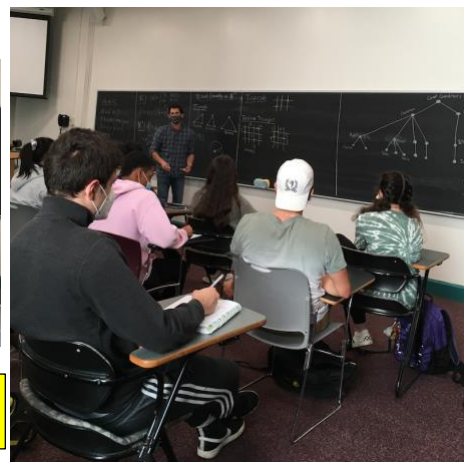
Winter Term Prescheduling: Advising this Week; Waitlist Sign-up Next Week

Even though we are only at the halfway point of the fall term, it is time to start thinking about winter term courses! Academic advising, during which students should talk with their faculty advisor to plan their winter term course schedule, starts this week. Next week, ``Student Planning" (Self-service) will open for Waitlist course sign-up.

Timeline:
- *Faculty Academic Advising*:   Monday, October 18 – Friday, November 5
- *Waitlist Course Sign Up on Student Planning*: Monday, October 25 – Friday October 29
- *Waitlist Course Review & Approval by Depts:* Monday, November 1 – Friday, November 5
- *Prescheduling on Student Planning by Appt:* Monday, November 8 – Thurs. November 11
- *Last Day to Preschedule on Student Planning:*   Sunday, December 12

Some Math and Statistics Courses: This winter, the math department will be offering several interesting courses beyond the calculus sequence that are suitable for math majors and minors.

Math/Statistics 128 (Probability) is a calculus-based introduction to probability. Students who might be interested in a career as an actuary or in financial mathematics should consider this course. This course is also helpful for economics majors, statistics minors, and prospective teachers.

Math 199 is the department's "bridge course," intended to help students make the transition from computationally oriented courses to more theoretical proof-writing courses. It is a **required** course for all math majors and minors that is *usually* taken *after* a student has taken Math 115.

Beyond Math 199: There are several courses being offered that have a Math 199 prerequisite:

- **Math 234** (Differential Equations). This course takes a somewhat more theoretical approach to the study of differential equations than its 100-level counterpart, Math 130. Note that students may only take one of these two courses.
- **Math 224** (Geometry) is a course in transformation geometry, studying and classifying the distance preserving functions, called isometries, of the plane. It is a course that is appropriate for students coming straight from Math 199. Additionally, as rudimentary transformation geometry is now included in the Common Core in middle and high school math, this course is wonderful for students considering teaching as a career.
- **Math 340** (Linear Algebra). This is a foundational course in math that is **required** for math majors. The primary objects of study in this course are vector spaces and the linear maps between them.

There are also a couple of statistics courses being offered!

Statistics 104 (Introduction to Statistics) This course provides the conceptual foundations and analytical skills for students to be able to quantify uncertainty and to make rational decisions in the face of uncertainty. It addresses the collection of high-quality data the basic statistical analysis of such data. Pre/Co-requisite(s): This course is designed for first year students and sophomores, and preference will be given to such students. Not open to students who have passed STA 064, STA 164, STA 164, MTH 115, MER 301, ECO 243, or PSY 200.

Statistics 264 (Regression Analysis). In this course, both the theory and application of regression analysis to develop regression models to fit real-world data sets are studied. Prerequisite(s): MTH 115 and one of STA 104, ECO 243, STA 164, PSY 200, ECO 243, MER 301 or permission from Chair.