Department of Mathematics

October 4, 2021

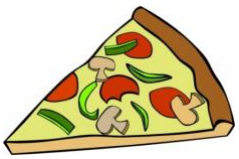
UNDERGRADUATE MATH SEMINAR

The next math seminar on the term will be

DATE: **THURSDAY, October 7**

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

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



Professor Jeff Hatley

In this seminar, **Professor Jeff Hatley** from the Department of Mathematics at Union College will deliver the following talk:

Title: Ultrametrics, Strange Geometries, and p-adic Numbers

Abstract: Different settings call for different ways of measuring distance. I can measure my daily commute by the length of road I travel, or I could measure the distance between my home and Union "as the crow flies." In the city, we might describe distances in terms of blocks -- routes constructed from straight-line paths and right-angle turns. You can even measure distance in more abstract, non-physical settings, such as the distance between you and your second cousin. In this light-hearted talk we'll discuss various notions of distance and explore some of the surprising consequences for "basic" geometric notions, such as what circles and triangles look like. We'll end by explaining why the usual geometry that everyone learns in high school is the strangest of them all.

Pre-requisites: If you know what a circle is, this talk is for you!

Professor Ellen Gasparovic Granted Tenure, Celebrated!

The math department is pleased to announce that this past spring, **Professor Ellen Gasparovic** was granted tenure and promoted to associate professor! Professor Gasparovic is an accomplished topologist – algebraic, differential, pure, applied, computational – who is an outstanding teacher of nearly the entire mathematics curriculum - a true renaissance mathematician. The department and the college are fortunate to have her as a member of the faculty.

Professor Ellen Gasparovic

Finally, after delays due to COVID, the math department was able to put icing on the cake and celebrate Professor Gasparovic's achievement this past weekend. The cake does say it all!

Calculus Help Center – open for business!

The math department runs a Calculus Help Center (CHC) that offers ***free, drop-in, tutoring*** in calculus courses through Math 117. It is open Sunday through Thursday nights 7:30-10:00pm and is located in the SORUM HOUSE seminar room.

Student Activities Aplenty this Past Week!

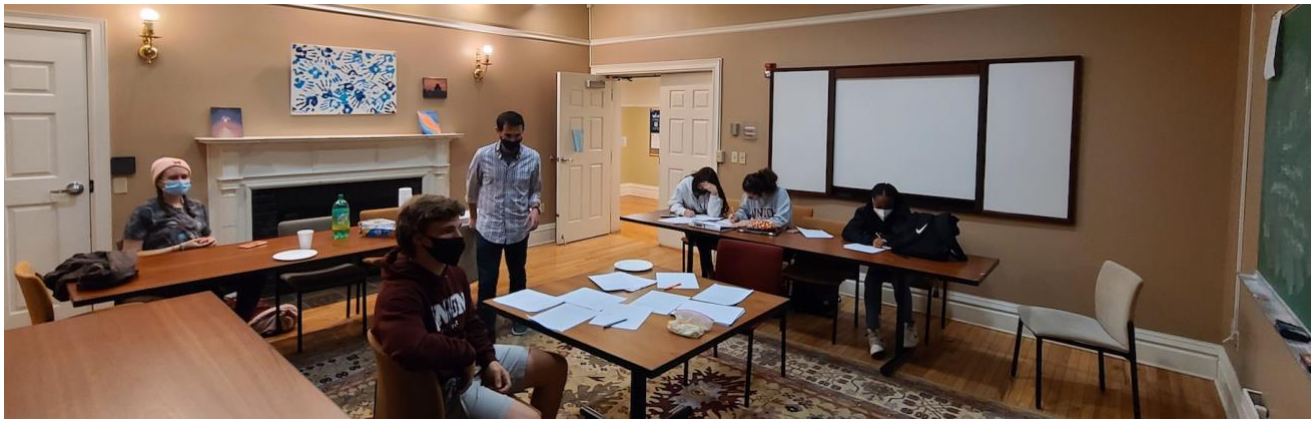
In the past week, there was plenty of student activity in the math department outside of the traditional classroom.

- Three students, **Joshua DaRosa, Zekai (Kai) Hu**, and **Zhebin (Irene) Yin** gave talks in the math seminar describing the research they performed this summer. For those who were unable to attend, Kai has written an article about his summer work, posted below.
- The **Putnam Exam Preparation (PEP) Squad** met in Messa House last Thursday night to learn problem solving techniques and work on solving practice problems for this year's upcoming Putnam competition. Interested in participating going forward? Contact **Professor Greg Malen** (maleng@union.edu) and/or attend the practice sessions on **Thursday nights, 7:00pm**, in **Messa 105.**
- The Association for Women in Mathematics (AWM) hosted a meet-and-greet with the math faculty, enjoying casual conversation and some good food! The pictures below are from these activities. We hope even more students are able to join the fun going forward!

My Summer Research, by Zekai Hu '21

This summer, I worked on a research project about building a computational model to predict the survival rate for preexisting heart failure patients in COVID-19. This research developed my computation ability by using R as the major tool to analyze the survival rate. Learning different survival functions like Kaplan Meier Model and Cox Proportional Hazards Models truly helps me to understand the usefulness of math functions. To test the validation of each model, the classic time-ROC and AUC was measured by R. In this research, the most difficult part is about data selection since there are few public data sets about heart failure patient in COVID-19. I eventually found a COVID-19 data set including heart failure as a variable that can be used to build an effective model. The result comes out that COVID-19 patients who have heart failure have 97% higher chance of death compared with non-heart failure patients. In the end, I want to appreciate **Professor Jue Wang**, who guide me and supervised me to finish my research and offered lots of help.

From the AWM Meet-and-Greet



Professor Greg Malen and the Putnam Exam Preparation Squad thinking deep thoughts!