

UNDERGRADUATE MATH SEMINAR

The next math seminar of the term will be

DATE: **THURSDAY, September 22**

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

Location: **12:50 – 1:45 Seminar in Bailey 207**



Professor Jeff Jauregui

In this seminar, **Professor Jeff Jauregui** of the Union College Department of Mathematics will present the following talk.

Title: Measure and Size

Abstract: Volumes of familiar shapes like cubes, spheres, and cylinders are easy to calculate, with formulas that have been known for thousands of years. But how can we find (or even define) the volumes of shapes which are much more complicated, possibly with jagged edges and infinitely many holes? Measure theory is all about studying such volumes (and, in two dimensions, areas) and has applications to integration, probability, physics, and even finance. This talk is a casual introduction to the subject. Along the way, we'll encounter exotic objects such as the Cantor Set, Sierpiński Carpet, and Menger Sponge.

Math Students: Become a Member of the MAA ... for FREE

The Mathematical Association of America (MAA) “is the world’s largest community of mathematicians, students, and enthusiasts. [It] further[s] the understanding of our world through mathematics because mathematics drives society and shapes our lives” (from www.maa.org).

The Union College math department is a Departmental Member of the MAA. As part of this membership, we may enroll its math students for MAA membership ... at no cost to the student! “Students receive considerable benefits and access to a wealth of information about careers in mathematics, mathematical education, and research; significant discounts on meetings, books, and merchandise; and membership in [our] local MAA section” (from www.maa.org). Included with this is access to the electronic versions of many fantastic math journals published by the MAA.

If you would like to become a member of the MAA through the Union College math department, please email the Math Chair, **Professor Leila Khatami** via mathchair@union.edu with subject JOIN THE MAA by **Friday, September 23**.

My Summer (Math!) Job: BEAM Counselor – by Mayah Teplitskiy '25

As a math major, the typical approach to a summer would be to apply to every REU (Research Experiences for Undergraduates). However, I missed that deadline and was hoping to find another job within the major. Luckily, **Professor Jeff Hatley** noticed that there were still job openings at BEAM Summer Away – hosted by Union College!

BEAM (Bridge to Enter Advanced Mathematics) is an organization that attempts to supply tools and guidance for students in underprivileged communities who have a real passion and knack for mathematics. The BEAM Summer Away program is one of the resources BEAM provides for its students in the summer before they enter 8th grade. The idea of Summer Away is to create a camp environment where students get to enjoy their summers while also accessing college level math.

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My job as a counselor was to TA classes for the students while also making sure they were safe in our Union dorms. The students were able to pick from a variety of topics that included Number Theory, Graph Theory, Knot Theory, and Set Theory, while faculty worked to make these higher level courses fun and exciting for 13-year olds. This was such a fun and rewarding experience to be a part of.

Not only was I able to foster such a welcoming environment with math at its core, but I also worked closely with other math majors and math professors. I even managed to learn some new math from the courses I TA'd. REU's aren't for everyone, especially not in their first summer of college. But, BEAM is a really great opportunity for math enthusiasts to have a great summer while also fostering a valuable and appreciated learning environment.

Some Math Faculty Summer Highlights

- **Professor Jeff Hatley** attended a week-long conference at the *Centre International de Rencontres Mathématiques* in Marseille, France. While there, he finished up a paper with a collaborator (Debanjana Kundu), who later visited Union College for several days to start a new project.



Look forward to next week's newsletter for more bullet points with math faculty summer activities!

Can you find Professor Hatley in the conference photo?

Putnam Exam Preparation

Do you enjoy creative problem solving in math? Do you enjoy proving your mettle by taking on treacherously difficult problems and showing them who the boss is? Do you like throwing your hat into the ring and participating in fun academic competitions.

If you answered YES to the above, join the **Putnam Exam Preparation (PEP) Squad!**

The William Lowell Putnam Mathematical Competition, aka, The Putnam Exam, is an annual contest for undergraduate students across the United States and Canada. Participants in the contest spend 6 hours (in two sittings, a morning session and an afternoon session) trying to solve 12 problems. Problems on the "exam" are generally *quite challenging*, but not specialized. In other words, they are accessible to students who may or may not have taken advanced courses.

If you are interested in participating or in finding out more about the Putnam Exam, simply attend the next PEP squad practice session, which will be

Tuesday, September 20 from 1:00-2:00 in Bailey 204 (Math Common Room)
Light refreshments provided!

This meeting is being co-hosted by the **Math Club**. If you cannot attend but would like to know more about either Math Club or the Putnam Exam, please contact **Professor Greg Malen** by email (maleng@union.edu) or pop by his office, Bailey 206-B.

Calculus Help Center: free calculus tutoring!

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