

## UNDERGRADUATE MATH SEMINAR

The next seminar of the winter term will be

**DATE:** **THURSDAY, January 29**

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

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



Professor Dan Martin

In this seminar, **Professor Dan Martin**, a mathematician at the University of Hartford whose research lies in the applications of differential geometry to general relativity will present the following talk.

### Title: Geometry and Our Universe

**Abstract:** At the start of the 20th century, Einstein developed his theory of general relativity in an effort to better model gravitation. He gave us what we now know as the Einstein equations, which describe the interaction between the matter and curvature of our space and time, or space-time. In short, the theory says that matter is responsible for bending space-time, and, in turn, this bending affects how matter moves through it. In other words, what we feel as gravitation is simply the desire of matter to move along straight lines in a space-time that has curvature. But how do we make sense of a straight line if our space-time is curved? These curves, which are the natural analogues of straight lines, are called geodesics. The goal of this talk is to explore these two fundamental concepts of differential geometry: geodesics and curvature.

### Hungry for Math? How About (Cutting) and Infinite Pancake?

The New York Times had [an interesting article](#) about a recently posted mathematical manuscript by a famous mathematician, Neil Sloane, founder of the “Online Encyclopedia of Integer Sequences” and an undergraduate, David Cutler, of Tufts University. It starts,

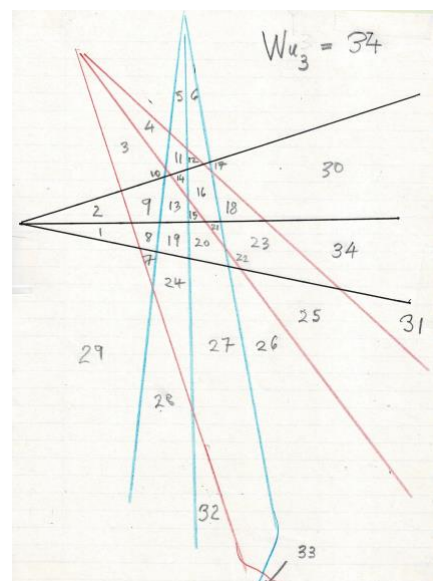
*“Cutting a Pancake with an Exotic Knife” might seem an unusual title for a piece of academic research. But that was the focus of the paper [posted online recently by two mathematicians](#).*

*“The investigation’s challenge: Cut a pancake into as many pieces as possible, in the latest attack on a longstanding puzzle known as the Lazy Caterer’s problem.*

*“Simple enough. But there were a few caveats: The pancake was infinite, spreading endlessly in every direction. And the simplest case involved an infinite, straight knife.*

*“The mathematicians, [Neil J.A. Sloane](#), the founder of the “[On-Line Encyclopedia of Integer Sequences](#),” and the aptly named David O.H. Cutler, an undergraduate at Tufts University, engaged in a lot of trial and error to negotiate the tricky task of optimally placing not just a straight knife but also a series of weirdly shaped knives on the pancake.*

*“You want to find the sweet spot,” Dr. Sloane said.”*



Some pancake cuts

## It Is Cold and Snowy. Plan for the Upcoming Summer.

In [last week's math newsletter](#), there was information about National Science Foundation (NSF) sponsored Research Experiences for Undergraduates (REUs) in mathematics. These are small summer programs that last 6-8 weeks, hosted by several universities and colleges around the United States. This summer, some will be held remotely, and others might be held at the host university. The range of research fields covered by different REUs is wide, including algebra, computational mathematics, differential geometry, data science, discrete math, knot theory, mathematical biology, and more. There is something for everyone!

<http://www.ams.org/programs/students/emp-reu>

The AMS website and the corresponding NSF site can be a little difficult to navigate. So here is another site that has links to many REUs.

<https://sites.google.com/view/mathreu/>

In addition, feel free to contact the math department's REU advisors, **Professors Jeff Hatley** ([hatleyj@union.edu](mailto:hatleyj@union.edu)) and **Rylan Gajek-Leonard** ([gajekler@union.edu](mailto:gajekler@union.edu)), to discuss the different programs and your options.

**Act soon!** Most of the application deadlines to REUs are in February or early March and letters of recommendation must be secured, so act promptly.

## Summer Job in Math with AOP!

The Academic Opportunity Program (AOP) is looking to hire two summer tutors/community advisors (TCAs) in math, one for precalculus and one for calculus. Math TCAs must have completed Math 199 by the end of Spring 2026 and have an overall GPA of 3.0 or better.

For a description of the position responsibilities and to apply, follow the QR code in the advertisement to the right, or contact Julissa Boyer ([boyerj2@union.edu](mailto:boyerj2@union.edu)) in the AOP office.

[Tell your non-math friends, too! The AOP/HEOP program is also hiring English, Political Science, Chemistry, and Engineering TCAs.]

## Free Peer Tutoring in Calculus Courses

### CALCULUS HELP CENTER!

Sunday - Thursday: 7:30 – 10:00pm

Sorum House Seminar Room

Looking for Paid Summer Work?

# AOP SUMMER

LOOKING FOR:

## TUTOR/COMMUNITY ADVISOR(S) & RESIDENT ADVISOR!

AOP is hiring TCAs for the following subjects: Political Science, English, Engineering, Chemistry, and Math.

**APPLICATION DEADLINE**  
**FRIDAY FEB 6, 2026**

Job Description	Application Form
	

QUESTIONS? EMAIL JULISSA  
AT [BOYERJ2@UNION.EDU](mailto:BOYERJ2@UNION.EDU)!