Department of Mathematics

February 4, 2019

UNDERGRADUATE MATH SEMINAR

Peter Bonventre '11

The next seminar of the term will not be on its usual day, but instead it is

DATE: **FRIDAY, February 8**

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

Location: **1:00 –** Seminar in **Bailey 207**

In this seminar, we are pleased to welcome **Peter Bonventre, Union class of 2011,** back to his alma mater. After graduating with a double major in Mathematics and Physics, and a minor in Greek Language, Peter attended the University of Virginia to pursue a PhD in Mathematics. He earned his degree in the spring of 2017. Since then he has been a **Postdoctoral Scholar at the University of Kentucky.** (You can read more about Peter's graduate school experience in the May 26, 2017 issue of the math newsletter, available through the Math Department's website.)

Title: Generalizing Composition of Functions and Operads

Abstract: Given two single-variable functions, we are allowed to take their composite to produce a new function again of a single variable. In this talk, we will ask: "In what other contexts does 'composition of functions' make sense?". We will slowly broaden our definitions of "function" and "composition", starting with the types of functions that appear in the Calculus sequence, and moving to include well-behaved geometric figures. This will lead us to the abstract concept of an **operad**. We will give several examples, as well as an interpretation of what these new objects can do for us.

Math Club and Association of Women in Mathematics – GAME NIGHT!

The Association for Women in Mathematics (AWM) and Math Club will be co-hosting a GAME NIGHT in **Sorum** Great Room, **Monday, February 4th** from **5:00 to 7:00pm**!

Game night will feature Jeopardy, Set, and other math related games! Food will be served! Hope to see you all there!

After enjoying *game night* on Monday, consider joining the math club. Its ***next meeting*** is **Thursday, February 7, at 2:00 in the Math Common Room, Bailey 204.**

Math Problem Solving Contests at Union College

Union College's students have been invited to participate in two upcoming regional math contests. Both contests will be administered on campus.

- The 13th annual **University of Rochester Math Olympiad** will be held on **Saturday, February 9** from 9:30am to 12:30pm**.** This contest consists of four proof-based problems to be solved over the three-hour time period with CASH prizes to the top three performers! For information about practice sessions, and to participate in this Olympiad, please contact **Professor George Todd** (toddg@union.edu), Bailey 108D.
- The sixth annual **Rochester Institute of Technology (RIT) Competition** will be held on **Saturday, March 23rd** from 9:30am to 12:30pm. The exam consists of four problems on which contestants will work individually. If you are interested in learning more about the exam and/or participating, please contact **Professor Jue Wang** (wangj@union.edu), Bailey 208C.

  A sample problem from last year's RIT contest is given below as this week's Problem of the Newsletter.

Save the Date:

Saturday
March 23, 2019

Hudson River Undergraduate Mathematics Conference (HRUMC) at Smith College

More announcements about this year's HRUMC will be made in the coming weeks, but mark it in your calendar now! Yes, it is the same day as the RIT math contest….

Problem(s) of the Newsletter – February 4, 2019

Last week's problem: Congratulations to **Khoa Ngo The '22** for solving last week's problem. You may view a solution to the problem at the newsletter sites in Bailey Hall.

This week's problem(s): Here is a problem from last year's RIT math competition. Have fun!

Find all pairs (x,y) of real numbers that satisfy the following system of equations

$$\sin^2 x + \cos^2 y = y^2$$
$$\sin^2 y + \cos^2 x = x^2$$

Professor Friedman (friedmap@union.edu) will accept solutions until midnight Friday, February 8.