

2011

Twelfth Kenneth C. Schraut Memorial Lecture (Poster)

University of Dayton. Department of Mathematics

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Undergraduate Mathematics Day at the University of Dayton Saturday, November 5, 2011

- An undergraduate mathematics conference
- Contributed 15-minute talks, especially by undergraduate students, on mathematics research, mathematics education, history of mathematics, and applications of mathematics
- Two invited addresses
- Electronic Conference Proceedings
- No registration fee, complimentary lunch
- Limited support for housing and travel

Registration and information: <http://academic.udayton.edu/mathevents/Fall11/>

Further Information: Paul.Eloe@notes.udayton.edu

Abstract Deadline: Wednesday, October 26, 2011.



The Twelfth Annual Schraut Memorial Lecture Jeffrey Diller, The University of Notre Dame

Imaginary Numbers, Unsolvable Equations, and Newton's Method

You might have been led to believe that math is all about solving equations. Sadly, however, most equations can't actually be solved. The best one can do is to try to approximate their solutions. Newton's method, usually taught in calculus, is one of the oldest and best methods for accomplishing this. The weakness to the method is that it depends on already having a reasonable guess at where the solution lies. In this talk, we look at what happens when you apply Newton's method with no clue about the solution and even allow yourself to do ridiculous things like use imaginary numbers as starting guesses. Despite the unpromising premise, this story has a happy ending and some nice pictures.



Judy Holdener, Kenyon College

Perfect and Abundant Numbers - a Perfect and Abundant Source for Undergraduate Research Projects

In June of 2009, the 47th perfect number was discovered by the Great Internet Mersenne Prime Search (GIMPS), a collaborative computing project involving volunteers from all over the world. Like all known perfect numbers before it, this number is even. Does an odd perfect number exist? Are there infinitely many perfect numbers? After more than 2000 years of study, the answers to these questions remain unknown. In my talk, I will introduce perfect numbers along with the closely related "abundant numbers". After presenting some relevant background information, I will reveal some of the abundant mystery surrounding these perfectly intriguing figures and report on some of the results discovered in recent years by undergraduates at Kenyon College. In doing so, I hope to illustrate that number theory is fertile ground for students itching to get involved in answering open questions in mathematics.

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