

Augarithms



Vol. 18, No. 13

Visit us at Augsburg.edu/math/

April 11, 2005

Mark your calendar. . .

Mathematics Colloquia Spring 2005

Mathematics colloquium talks are Wednesdays 3:40-4:40 p.m. in Science 108. Refreshments are provided.

- Jan. 26 Dr. Nicholas Coult, Augsburg College
- Feb. 9 Dr. Terrance Hurley, Dept. of Applied Economics, University of Minnesota
- Feb. 23 Dr. Brian Loe, Lockheed Martin Corporation
- Mar. 9 Profs. Tracy Bibelnieks, Blake Boursaw and Matthew Haines, Augsburg College
- Apr. 6 Dr. Matt Richey, St. Olaf College
- Apr. 13 Dr. Brenda Kroschel, University of St. Thomas**
- Apr. 27 Dr. Danny Kaplan, Macalester College

Extended Interlacing Intervals

Brenda Kroschel
Assistant Professor of
Mathematics
University of Saint Thomas

Eigenvectors of a square matrix A are those vectors that are simply scaled when multiplied by the matrix. For 2-by-2 matrices this relationship can be seen geometrically by plotting unit vectors x simultaneously with the product Ax . The first part of the

talk will discuss eigenvalue/eigenvector pairs and the ClockHands computer graphics program for visualization of eigenvalue/eigenvector pairs. The ClockHands demonstration will be followed by a discussion of eigenvalue interlacing and some generalizations. Here, we will discuss classical eigenvalue interlacing for a symmetric matrix A and we will explore these classical results from a different perspective.

Math Awareness Month Mathematics and the Cosmos

What is the Universe? Where does come from? What does it look like? Are there others?

Mathematics is at the foundation of our attempt to answer such questions about the cosmos. This April 2005 Math Awareness Month (MAM) celebrates the connection of mathematics and the cosmos.

Mathematics Awareness Month was started in 1986 in efforts to increase public awareness and appreciation for mathematics, with each year having a specific theme:

- 2004 - The Mathematics of Networks
- 2003 - Mathematics and Art
- 2002 - Mathematics and the Genome
- 2001 - Mathematics and the Ocean

For more information go to <http://www.mathaware.org>



Augarithms is available on-line at ausburg.edu/math/augarithms/.
Click on the date you want to see.

Augarithms

*The Bi-weekly Newsletter of
the Department of
Mathematics at Augsburg College*

2211 Riverside Avenue
Minneapolis, MN 55454

Editors.....Su Dorée, Matt Haines
e-mail address.....doree@augsb.org
.....haines@augsb.org

Shape of Space

Is there someone you would like to place in a spaceship and have them travel far, far away? If you set the controls so that the spaceship would travel in a straight line, you would never have to see the person again. Right?

Well, maybe not....

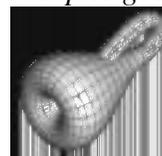
It depends on the shape of space (and of course the availability of Chevron stations). Often space is thought of as infinite and unbounded, but what if space is shaped like Earth? If one could walk around the globe in a straight line, one would eventually end up where the journey was begun. The same might be true with space.

The shape of space is no easy question to answer. Think about the Earth. Ancient Greeks “knew” the Earth was spherical, but how did they know? How can we know? In our everyday observations, do we notice that the Earth is not just a flat disk? Or a donut-shaped figure? Modern day cosmologists try to answer these same questions about our universe.

There are plenty of resources for information on the shape of space. A nice video for classroom purposes can be found at <http://www.geom.uiuc.edu/video/sos/>. Some online activities can be found at <http://www.geometrygames.org/SoS/>.



Geometry students ponder double elliptic geometry.

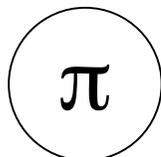


Guess Who?



Pastor Dave Wold helps read digits of pi.

3.1415926535897932
38462643383...



Unbounded Raises Funds for Tsunami Relief

On Pi Day (3.14), Unbounded raised over \$130 to contribute to Augsburg College's *Riding the Wave of Giving* efforts to raise money to build a school/community center in a coastal village in India. Augsburg is collaborating with Lutheran World Relief on this project.

On Pi Day, students, faculty, staff, and administrators helped read over 24,400 consecutive digits of pi. Student Gretchen Hemmingsen read digits to people as they waited in line for coffee; Professor Frankie Shackelford read digits in Norwegian; and Professor Phil Adamo provided a dramatic rendition of digits 9624 through 10,608. Math major Jon-Erik Hokenson read the most digits in a 5-minute time period – 1480 – that's about 5 per second. Nice job Jon-Erik! Donors also received the opportunity to throw pies at volunteering faculty and staff. Unbounded thanks all participants and donors.

For more information on the *Riding the Wave of Giving* project, contact Chris Brown, brownc@augsborg.edu, 612-330-1545.