

MSCS Mess

Department of Mathematics, Statistics, and Computer Science
St. Olaf College, Northfield, MN 55057

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<http://wp.stolaf.edu/mscs/mscs-mess/>

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MSCS Colloquium

Title:	Coping with Cross- Community Contacts in Cluster- randomized Trials of Infectious Disease Prevention
Speaker:	Nicole Bohme Carnegie
Date:	Monday, December 7
Time:	3:30 pm- 4:30 pm
Location:	RNS 310

About the Talk: Typically, treatment effects in cluster-randomized trials are estimated under the assumption that the outcomes of the clusters are independent. In infectious disease prevention, it is often not plausible to assume that the disease does not spread between communities, and hence this independence assumption is violated. Thus, the estimate of the treatment effect obtained under randomization will be attenuated (relative to that which would be observed if the treatment were implemented population-wide, the “overall treatment effect”) if a fraction of the exposures in the treatment clusters come from individuals who are outside those clusters. This contact mechanism is, however, measurable. We make use of the rich history of epidemic modeling to infer how a given level of cross-cluster contact influences the force of infection upon members of a cluster. This leads to the development of an intuitive estimator of the overall treatment effect, effectively using a treated fraction in place of the usual treatment indicator.

Pi Mu Epsilon Fall Speaker

Title:	Approximating π Using Similar Triangles
Speaker:	Ryota Matsuura
Date:	Monday, December 14
Time:	3:30 pm- 4:30 pm
Location:	RNS 310

About the talk: A method for approximating π is using similar triangles. The method relies on a repeated/recursive application of a geometric construction that allows us to easily inscribe regular polygons inside a unit circle with arbitrarily large number of sides. As an added bonus, the talk will also involve how to derive some interesting identities, including an infinite product for π that was first discovered in the late 16th century.

Putnam Problem-Solving Contest

Problem-solvers, the contest you've been waiting for all year is nearly here. The Putnam will take place on Saturday, December 5th. This contest takes place in two parts, from 9:00 am-12:00 pm and 2:00-5:00 pm. For more information on the Putnam, visit the problem solving group's website:

<http://pages.stolaf.edu/diveris/category/ps/>

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or contact Prof. Diveris (diveris@stolaf.edu) or Wright (wright5@stolaf.edu). We hope to see you there!

Come Compete in the Mathematical Contest in Modeling (MCM 2016)!

Bring all of your skills in mathematics, statistics, or computer science to tackle a real world problem from the contest. Past problems have included: solving a traffic flow problem in a small town, figuring out a way to eradicate Ebola, and locating the missing plane from flight MH 17.

In this contest you can work together in teams of up to three students competing with others from across the United States. The contest will take place on the St. Olaf campus during January 28--February 01, 2016. There will be a warm-up meeting on December 13, 2015 where we will look at winning solutions from past contests.

The MCM 2016 is a fun way to gain experience with solving big real world problems and a nice achievement to add to your resume. As an added bonus, all teams will be kept well-fed during the contest, afterwards all participants will celebrate their successes with a special dinner off campus.

All levels of experience are welcome! The registration deadline is December 15, 2015. Contact Prof. Purin (purin@stolaf.edu) for more information, or to register.

Game Night in the MSCS Lounge

Get ready for the first MSCS game night of the year! Mark your calendar for Monday, December 14th, from 6pm-9pm (or as late as you want to stay), on the 6th floor RMS for pre-finals de-stressor fun. The math honor society PME is running the event this year and we'll

start to serve **pizzas and snacks** around 6:30pm. Drop by with your friends, classmates, and maybe even challenge a MSCS faculty to a game of Settlers of Catan, Dominion, cribbage, Scrabble, or whatever else catches your eye.

Apply to Become a Pi Mu Epsilon Member

Are you interested in joining the mathematics honor society? St. Olaf recently created a chapter of a national mathematics honor society called Pi Mu Epsilon (PME). PME promotes and recognizes scholarly activity in mathematics. If you are interested in PME, here are the requirements:

- Juniors: Need to have taken or currently be in one 300-level mathematics class.
- Seniors: Need to have taken or currently be in a second 300-level mathematics class.
- Need to take three-300 level mathematics classes before graduation.
- Need to maintain a 3.5 GPA in Mathematics.
- Need to participate in PME and/or volunteering experience.

If you have any questions, or if you would like to join Pi Mu Epsilon's St. Olaf Chapter, please contact the president Akina Khan (khan@stolaf.edu) by January 15, 2016.

From the Editor

A Joke

Q: What do you call a young Eigensheep?
A: A lamb, duh!

Editor-in-Chief:	Akina Khan
Faculty:	Thomas Rogers
Mess Czar:	Patty Martinez

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