Math ⬡ Mess

This Week's Mathematics Colloquium

Title: Becoming a teacher of statistics: an intro to the field of statistics education

Speaker: Joan Garfield

Time: Thursday, April11th, 2 pm

Place: SC 182

This Week's Colloquium

Statistics education is a rapidly growing area. This is due to the inclusion of statistics in the current K-12 mathematics curricula and to the tremendous increase in interlocutory college statistics courses. To address the need for better-prepared statistics teachers at the high school and college level, new programs which offer graduate degrees in statistics education are being created. The first program to formally admit students is located in the Department of Educational Psychology at the University of Minnesota. This presentation will provide an overview of the exciting field of statistics education and share information on the new graduate programs in this area.

Joan Garfield received her PhD in Educational Psychology in 1981 from the U of M. She has a Masters in Math Ed from the U of M and a B.S. in Elementary Ed from the U of WI, Madison. Professor Garfield taught mathematics and statistics for 14 years in the General College at the U of M before moving to the College of Education in 1995, where she now teaches courses in statistics, evaluation, and assessment in the Department of Educational Psychology.

Career Column

Career of the Week: Financial Engineer

Financial engineering uses mathematical tools to model and forecast financial markets and form financial products and strategies. In particular, financial engineers help corporations and financial institutions develop and use financial instruments to structure their transactions, increase earnings, and generate capital. They design strategies to ensure desired income streams and increase returns for investments and to manage risks for financial institutions. The mathematics used includes probability, statistics, differential equations, and linear algebra.

Financial engineers are employed by energy firms; financial data, software, and research firms; investment firms and banks; insurance companies; stock exchanges; and the Federal Reserve. College graduates can gain experience in the field by working as analysts for companies such as

Morgan Stanley (www.morganstanley.com). A growing number of schools offer a Master's Degree in financial mathematics. For a list of programs see the education section of the website of the International Association of Financial Engineers (www.iafe.org).

Summer Math Opportunity

Brigham Young University is offering a one-week intensive program in minimal surface theory at their Mathematics Institute. This is somewhat like a summer REU but only for one week from June 3-June 8. The application deadline is April 30 and more information is available at http://www.math.byu.edu via the link "Summer Mathematics Institute."

Congrats!

Congratulations to math majors Gabe Kortuem and Cory Dingels in their recent athletic achievements! Gabe won the NCAA Division III 1-meter Diving championship, setting a new national record, at Miami, OH, on March 21. Cory placed second in the Long Jump and 10th in the High Jump at the NCAA Indoor Nationals in Ada, OH on March 8.

Biostats Wants You

Did you know that biostatisticians working in industry start at average annual salaries of $70,000 eventually making upwards of $135,000 or more? In addition, the field of biostatistics offers individuals opportunities to work in dozens of areas including genetics, clinical trials, public health, bioinformatics, and biomedical imaging. More surprising is that there is a dramatic shortage of people in the field. An obstacle for a number of potential candidates is that they neglect to take courses in Linear Algebra, Multivariable Calculus and Real Analysis while they are undergraduates. These courses are essential for graduate study in biostatistics, so be sure to take them along with all of the statistics courses you can fit in your schedule. And while the salary information was

intended to get your attention, you should also be aware that there are a multitude of applications of statistics that could benefit the community: for example, working on methods to adjust census counts of the homeless or assessing the effects of toxic exposures in the environment or on human development. To find out more, check out

http://www.amstat.org/careers/brochure.html   or talk to Professor Legler.

Last Week's Solution

Last week's problem: Cut out these shapes (not shown in this issue) and make a 7-by-7 square using 7 dominos, 10 small kites and 5 large kites.

Solution: We received solutions to last week's puzzle from **Noah Loome** and **Brian Peters**. ++++++There are still many, many copies of last week's Mess lying around, so I encourage you to pick one up and try the puzzle yourself. There are five different solutions. You can find these and similar challenges at http://mathpuzzle.com/kitesbricks.html

Problem of the Week

Let V_n be the collection of all functions that are equal to their own nth derivative. So, for example, V_1 is just all multiples of e^x; V_2 is linear combinations of $e^{\check{x}}$ and e^x, etc. (V_n is a vector space, but that isn't really the point here.) So, we have this infinite chain $V_1 \subseteq V_2 \subseteq V_4 \subseteq V_8 \ldots$. Does this chain eventually "stabilize", or is there always something in V_{2n} that is not in V_n?

** Please submit all solutions to David Molnar (molnar@stolaf.edu) by noon on Sunday.