

L'Augarithms



vol. 24.03

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October 20, 2010

Mathematics Colloquium Fall Lineup

Colloquia are typically held Wednesdays 3:40—4:40 in Oren 113. Refreshments will be served.

Sep.	8	Annual Meet and Greet of the Mathematics Dept.
	15	Misha Shvartsman, University of St. Thomas
	29	Yoichiro Mori, University of Minnesota
Oct. →	20	Christopher Poletto, Medtronic, Inc. ¹
Nov.	3	Matt Richey, St. Olaf College
	17	Travis Schauer, Boston Scientific
Dec.	1	TBA

¹This Week's Speaker: Christopher Poletto

Math in Medtronic Neuromodulation Research

Math is used at almost every step of the process of bringing medical therapies from the concept stage to commercialization. Advanced math is most likely to be used for research and engineering, but can be for finance, market prediction, supply chain modeling, logistics control, and many others. As a Principal Research Scientist for Medtronic Neuromodulation, Christopher Poletto uses complex math in a variety of ways. Neuromodulation stimulation research utilizes mathematical methods for modeling electrical fields and the tissue responses to those fields, experimental design, and data processing and analysis.



This talk will provide a brief overview of Medtronic and its products, along with a few examples of the way that Dr. Poletto and his colleagues use advanced math in their work.

Come enjoy the talk and the refreshments.

Best Church Bulletin Humor...

According to an article on the internet, the announcement below (and those in this section in subsequent issues of *L'Augarithms*), actually appeared in church bulletins, or were announced at church services:

*The Fasting & Prayer Conference
includes meals.*

Problem of the week...

The POTW from volume 24.02 had solvers: **Al Jibra**, and **Brian Peterman**, **Mathematics Faculty, Century College**. The correct answer was $C(n, 4)$.

Here is the new POTW: In the current incarnation of the PowerBall Lottery, each \$1 ticket has 1 chance in 195,249,054 of winning the grand prize. If you were to buy n \$1 tickets with distinct number-combinations, twice per week for 40 years, what would n need to be for you to have a 50-50 chance or better of winning the grand prize at least once over the 40-year period? Assume that the chance of winning remains unchanged over the years, and ignore the logistical problem of going into a convenience store and asking to purchase a very large number of distinct tickets two times per week for 40 years.

Puzzle of the week...

Solvers to the PZOTW from v24.02 were: **Jasmine Zand**, **Allison Martha Zank**, and **Stu Stoller**. The answer was 46. Here's the new:

Some non-prime numbers can be turned into prime numbers by changing one of their digits: $12 \rightarrow 13$, $609 \rightarrow 619$, etc. What is the smallest number that cannot be changed into a prime by changing a single digit?

❖ Submit puzzle & problem solutions to kaminsky@augsborg.edu, or under Ken Kaminsky's door at SCI 137E, or in the puzzles and problems box just outside of Su's office.

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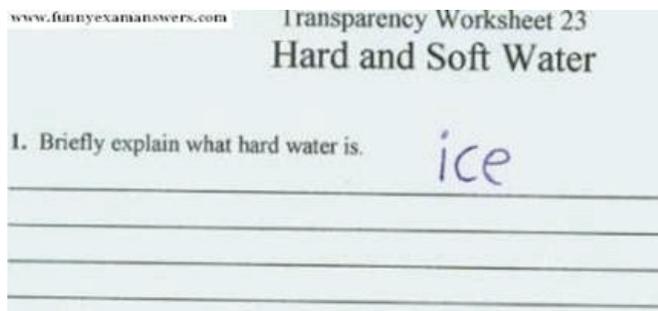
The approximately bi-weekly newsletter of the

Department of Mathematics
at Augsburg College

Editor.....Kenneth Kaminsky
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Best School Humor ...

This came to us under the heading: "How to fail a test with dignity."



Fun Math Quotes

On mathematics, American journalist, humorist, food writer, poet, memoirist and novelist **Calvin Trillin** (→) said "I never did very well in math-I could never seem to persuade the teacher that I hadn't meant my answers literally."



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When asked his age, British mathematician and logician **Augustus De Morgan** (→) replied "I was  $x$  years of age in the year  $x^2$ ." What was  $x$  for De Morgan?



## Mathematician Biography: Gertrude Cox: "The First Lady of Statistics"<sup>2</sup>

**Gertrude Mary Cox** was a leader in the promotion of modern statistical methods. She was born in Dayton, Iowa, in 1900. After graduating from high school in 1918, she studied to become a deaconess in the Methodist Episcopal Church. In 1925, however, she enrolled at Iowa State University and received her B.S. in mathematics in 1929. She described her start in statistics in a 1959 interview: "I majored in math...because I liked it and because I could elect all the psychology and craft courses that I needed. I was working my way through college and managed to land a job in the computing laboratory. In that manner I became interested in statistics. By the time I graduated, I was as well trained in psychology and crafts as in math but I was already in statistics. Consequently, I stayed on in that field." In 1931 she received the first M.S. degree in statistics from Iowa State University with a dissertation on "A Statistical Investigation of a Teacher's Ability as Indicated by the Success of His Students in Subsequent Courses."



Gertrude Cox (1900-1978)

She left Iowa to study psychological statistics for two years at the University of California at Berkeley, but returned to Iowa State to assist George Snedecor, her master's thesis advisor, in organizing his new Statistical Laboratory. In 1939 she was appointed as an assistant professor of statistics at Iowa State, then became a professor of statistics at North Carolina State University at Raleigh in 1940. She helped to establish the Department of Experimental Statistics at North Carolina State University (1941) and the Institute of Statistics of the Consolidated University of North Carolina (1944). After her retirement from NCSU in 1960, Cox became the first head of the Statistics Research Division of the Research Triangle Institute. She retired from that position in 1965, then worked as a consultant to promote the development of statistical programs in Egypt and Thailand.

Gertrude Cox was one of the founders of the Biometric Society in 1947. She served as a member of its Council and as its president from 1968 to 1969. She also served as President of the American Statistical Association in 1956. In 1949 Cox became the first female elected into the International Statistical Institute, and was elected to the National Academy of Sciences in 1975. In 1958 she was awarded an honorary Ph.D. from Iowa State University. In 1950 Cox and William G. Cochran wrote the book *Experimental Design* [Table of Contents] that became a classic in the design and analysis of replicated experiments. A second edition appeared in 1957. Cox continued to be professionally active up to her death from leukemia in 1978.

### References

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- Yates, Frank. "Obituary: Gertrude Mary Cox, 1900--1978," *J. Roy. Statist. Soc. Ser. A* 142 (1979), no. 4, 516--517
- "Gertrude Mary Cox—1900–1978," *Biometrics* 34 (1978), no. 4, 719-720
- Sandra Stinnett. "Women in Statistics: Sesquicentennial Activities," *The American Statistician*, May 1990, Vol 44, No. 2, 74-80 [Biography reprinted from *Statisticians in History*, American Statistical Association website]
- Gertrude Cox: First Lady of Statistics, online exhibit from the North Carolina State University Library
- MathSciNet [subscription required]
- Mathematics Genealogy Project
- Biography at the MacTutor History of Mathematics Archive.

<sup>2</sup>Reprinted with permission from <<http://www.agnesscott.edu/lriddle/women/cox/htm>>.