L'Augarithms

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

[1]This Week's Speaker: Matt Richey, St Olaf College

A Probabilist Goes To a Baseball Game

No sport is more dependent on random chance that our great American pastime. Over the years, baseball strategists have come up with a variety of ploys aimed at increasing run production. These include the sacrifice bunt, stealing, and hit and run. However, the efficacy of these strategies has not been carefully scrutinized—their popularity depends more on tradition than analysis. In addition, there are various ways of assessing individual batter effectiveness (think of batting average, home runs, on-base percentage, etc). Again, most of these have rarely been assessed in light of the ultimate goal of batting: namely scoring runs. In this talk, I introduce an intuitive probabilistic framework for assessing offensive performance. I will use this framework to assess some of the different baseball strategies, e.g., when, if ever, is it a good time to bunt? I will also look at individual hitter performance. For example, who is the best hitter in baseball and how can we compare batters across eras? No advanced mathematics is required, but some familiarity with the rules of baseball will be assumed.

Matthew Richey is a life-long fan of baseball, starting with the Big Red Machine (Cincinnati Reds) in the 1970's and now as a long-suffering Minnesota Twins observer. When not thinking about baseball, he is the Associate Dean for Natural Sciences and Mathematics at St. Olaf College and practicing applied mathematician.

As always, refreshments will be served.

Problem of the week...

The POTW from vol. 24.03 had only one solver: **Christopher Poletto**, our colloquium speaker on October 20. The answer is that one is required to buy at least 32,531 tickets, twice per week for 40 years in order to have at least a 50-50 chance of winning at least once. Now, the new POTW.

Joe D.

In 1941, New York Yankee Joe DiMaggio set a hitting record that still stands, sixty-nine years after it was set. Joltin' Joe hit safely in 56 consecutive games. No one has ever been within 10 games of that record.

Calculate the probability of hitting safely in 56 or more consecutive games, making the following simplifying assumptions: at-bats are mutually independent, the probability of a hit on each at-bat is 0.357 (Joe's 1941 batting average), and he has four at-bats in every game (close to his average of 3.9 per game).

Puzzle of the week...

The only solver of the Puzzle from vol. 23.03 was **Blake Vliep**. He got 200. No one got the extra credit.

Going into the season-ending double-header, Jack Larson and Lars Jackson have the same batting average and both have had hundreds of at-bats. Larson goes 7 for 8 for the day (.875), while Jackson goes 9 for 12 (.750). But Jackson's season average turns out to higher than Larson's. How can this be?

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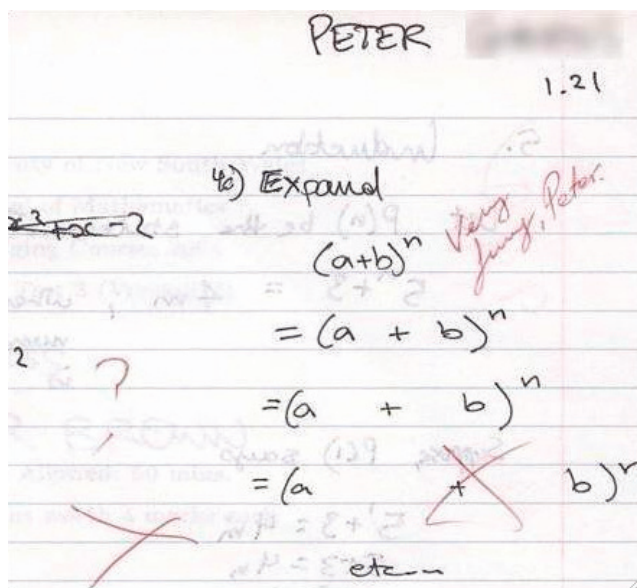
Best School Humor ...

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

Benoît Mandelbrot Dies at 85[2]

Benoît B. Mandelbrot, a maverick mathematician who developed the field of fractal geometry and applied it to physics, biology, finance and many other fields, died on Thursday in Cambridge, Mass. He was 85.

The cause was pancreatic cancer, his wife, Aliette, said. He had lived in Cambridge.

Dr. Mandelbrot coined the term "fractal" to refer to a new class of mathematical shapes whose uneven contours could mimic the irregularities found in nature.

"Applied mathematics had been concentrating for a century on phenomena which were smooth, but many things were not like that: the more you blew them up with a microscope the more complexity you found," said David Mumford, a professor of mathematics at Brown University. "He was one of the primary people who realized these were legitimate objects of study."

In a seminal book, "The Fractal Geometry of Nature," published in 1982, Dr. Mandelbrot defended mathematical objects that he said others had dismissed as "monstrous" and "pathological." Using fractal geometry, he argued, the complex outlines of clouds and coastlines, once considered unmeasurable, could now "be approached in rigorous and vigorous quantitative fashion."

For most of his career, Dr. Mandelbrot had a reputation as an outsider to the mathematical establishment. From his perch as a researcher for I.B.M. in New York, where he worked for decades before accepting a position at Yale University, he noticed patterns that other researchers may have overlooked in their own data, then often swooped in to collaborate.

[2]From the New York Times obituary by Jascha Hoffman. For the complete obituary, go to <nytimes.com/2010/10/17/us/17mandelbrot.html?_r=1>
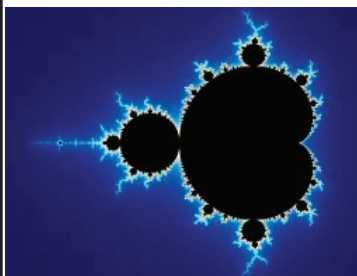
Best Church Bulletin Humor...

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:

Our youth baseball team is back in action Wednesday at 8 PM in the recreation field. Come out and watch us kill Christ the King.

Cartoon Corner (Professor Fogelfroe)