L'Augarithms

vol. 23.10 We're even prettier in color. Honest. Visit us at <augsburg.edu/math/> March 24, 2010

Mathematics Colloquium Spring Lineup

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

Jan.	27	Pat Van Fleet, University of St. Thomas
Feb.	10	The Proof, BBC production about Andrew Wiles's solving of Fermat's Last Theorem.
Feb.	24	Sudipto Banerjee, Div. of Biostatistics, U. of Minn.
Mar.	8-12	Speaker(s) to be announced
Mar. →	24	Victor Addona, Macalester College[1]
Apr.	21	Catherine Sampson, General Mills

[1]This week's speaker...

Victor Addona, Macalester College

❖ Using sports related examples to motivate statistical concepts

Victor Addona

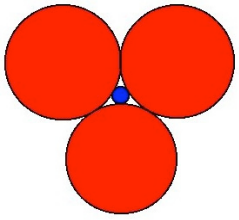
We motivate some of the core probabilistic and inferential methods used in statistics through the use of real data, and scenarios, from a variety of sports. Many of these examples are drawn from a freshman course entitled, "Statistical Analysis of Sports and Games". In many respects, this is a standard first college course in statistics. Analyzing sports data, however, generates student interest in statistical ideas, and objective decision making in the sporting world continues to replace haphazard gut feelings. The plethora of sports related examples are not restricted to "traditional" sports data. For instance, we will discuss the graduation rates of college athletes, and the birthdays of professional hockey players! In 2005, only 4 of the 64 teams participating in the NCAA Men's "March Madness" basketball tournament graduated all of their players.

Does this support the conventional wisdom that college athletes under perform academically? Through the 2008-09 season, 29.4% of all players who had ever played in the National Hockey League were born in the first quarter of the year, while only 21% were born in the last quarter. Is this surprising? If time permits, we will discuss some other examples, like whether or not to "go for the win" at the end of certain games. As we will see, at the core of any statistical analysis is a desire to answer questions of interest in impartial and meaningful ways.

High quality refreshments will be served.

Problem of the week...

Last issue's "free-throw" POTW was solved by **Carl Benson**, **Hans 'Tiny' Knekmek** and **Al Jibra**. They got probabilities of 50/116, 45/116, and 21/116 for Joe, Butch, and Matilda respectively.



Consider now, the arrangement of four circles shown here. If the radius of the smaller (blue) circle is r, what is the radius R, of the larger (red) circles? Note that the larger circles are all tangent to the smaller circle and to each other.

❖Reprinted with permission from Bradley U's 'potw' page <bradley.bradley.edu/~delgado/>

Puzzle of the week...

Last issue's puzzle was solved by Augsburg student **Carl Benson** and **Al Jibra**. **Nathan Gossett** of Bethel Univ. solved the puzzle from volume 23.08. Here is the new puzzle:

Fill in the blanks with the same seven letters in the same order so that the sentence makes complete sense.

A _____ chef was _____ to serve the meal because he had _____ .

❖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.

L'Augarithms
The approximately bi-weekly newsletter of the Department of Mathematics at Augsburg College
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Died on this day in 1956 — Christine Mary Hamill

Christine Hamill we born July 24, 1923 in London, England. Her father, Philip Hamill, was a medical doctor and a Fellow of the Royal College of Physicians. Christine studied first at St Paul's Girls' School where she won a foundation scholarship, then at Perse School for Girls. She was awarded a Caroline Turle scholarship to study at Newnham College, Cambridge in 1942.

At Cambridge, Hamill was very successful, becoming a Wrangler (someone graduating with a first class degree) in 1945 and achieving a distinction in Part III the following year. She continued to study at Cambridge, working for her doctorate. In 1948 she was awarded a Newnham research fellowship and she was awarded her doctorate in 1950.

The year she received her doctorate, Hamill was offered an assistant lectureship at the University of Sheffield which she accepted. She was to spend four years at Sheffield being promoted to a Lecturer in Mathematics in 1952.

J. A. Todd supervised her research work at Cambridge and describes the work of her doctoral dissertation:

This work contains a detailed study of the finite primitive collineation groups which contain homologies of period two. Starting with an analysis of the geometrical configuration formed by the centres and the invariant primes of the homologies, she was able, by a very thorough and careful investigation, to obtain, for each of the groups, the distribution of the operations in conjugate sets, and to make the nature of these operations clear.

Hamill published three papers based on her dissertation in 1948, 1951 and 1953. These papers describe groups of order 576, 6531840 and 348364800 respectively.

J. A. Todd assesses the importance of these papers:

The groups concerned are of interest from various points of view, and the detailed results contained in her papers contain something of permanent value.

In 1954 Hamill accepted a post as lecturer in the University of Ibadan in Nigeria. She had already earned a high reputation as a teacher both at Cambridge and at Sheffield and was said to have great talent at getting the best from weaker students. In Ibadan she quickly began to show the same lecturing talents giving lectures of great clarity.

Outside mathematics:

... she had wide interests, was a keen dinghy sailor and took an active part in youth welfare.

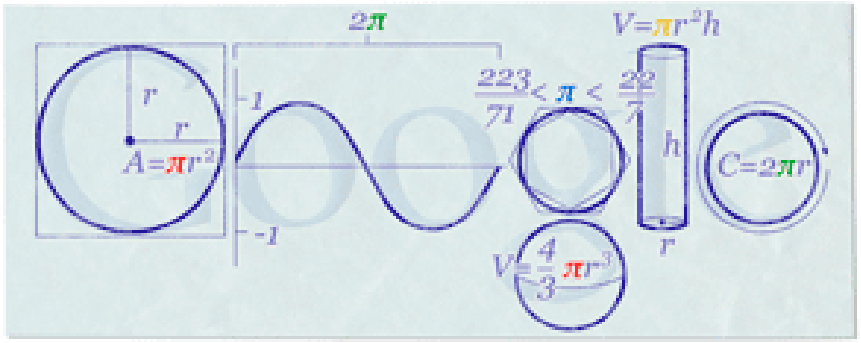
After four terms in Ibadan, Hamill contracted poliomyelitis and her death was rapid occurring only two days after she became ill. J. A. Todd remarks:

... she will be remembered for her natural and innate friendliness, for her complete sincerity, and for her strength of character, fortified by a firm Christian faith, and a sincere acceptance of all that that implied.

She died in 1956, in Ibadan, Oyo State, Nigeria, a few months before she was to have been married.

❖Article by: *J J O'Connor and E F Robertson* (reprinted with permission)

Look how Google celebrated π day.



A few π-facts[2]

The first six digits of pi (314159) appear in order at least six times among the first 10 million decimal places of pi.

Ludolph van Ceulen (1540-1610) spent most of his life calculating the first 36 digits of pi (which were named the Ludolphine Number). According to legend, these numbers were engraved on his now lost tombstone.

William Shanks (1812-1882) worked for years by hand to find the first 707 digits of pi. Unfortunately, he made a mistake after the 527th place and, consequently, all of the following digits were wrong.

[2]Source: http://facts.randomhistory.com/2009/07/03_pi.html