Augarithms

AUGSBURG COLLEGE

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Mathematics Colloquium SPRING Lineup

Colloquia are now typically held Wednesdays 3:40—4:40 in Oren 111. Refreshments are always provided.

Feb.	27	Matt Haines, Augsburg College
Mar.	12	Michael Weimerskirsh, St. Olaf College
Apr.	2	Augsburg Students—Trevor Floren & Billy Helm
Apr.→	16	Michael Conklin, Advanced Analytics[1]

[1]This weeks speaker (and the last show of the season)

Michael Conklin—Chief Methodologist

Michael Conklin is a marketing research veteran and analytical methodology pioneer with over 20 years experience. Michael has deep experience in advanced analytics and is a Bayesian research modeling expert. In his capacity at MarketTools, Michael leads the advanced analytics teams and personally consults with clients on strategic research issues, providing sound analytical recommendations leading to deeper insights.

Prior to joining MarketTools, Michael served as Senior Vice President, Analytic Services for one of the top five global marketing research firms where he was instrumental in developing key analytical procedures for customer satisfaction, brand equity and product development. He is a frequent speaker at the American Marketing Association's Annual Advanced Research Techniques Forum as well as at the American Statistical Association's Joint Statistical Meetings conference. In addition, Michael has written numerous papers on research methodologies and applications for key marketing publications such as Marketing News and Marketing Research Magazine as well as numerous statistical journals.

From the Dictionary of Theories[2]

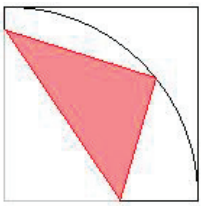
Kepler's rule (16th century) Based on the harmony of the universe, by Johannes Kepler (1571-1630).

The spheres on which the planets (starting with Mercury) mover around the Sun can be constructed by successively inscribing and circumscribing spheres about the regular polyhedra in the order octahedron, icosahedron, dodecahedron, tetrahedron, cube. Later observations by Kepler showed this was accurate to about 5 per cent. However, no further regular polyhedra exist to determine the spheres for Uranus, Neptune, and the minor planets. Also, according to Kepler's first law of planetary motion, which he discovered later, the planets do not mover in circles about the Sun but on ellipses with Sun at one focus. The basis for the 'proof' of the result is that it is easy to find numbers approximately equal to a few given numbers.

[2]Article by John Bowers. Reprinted with permission from *Dictionary of Theories*, by Jennifer Bothamley.

Problem of the week...[3]

There were no correct solutions to the 'lumberjack' problem of v21.08. The answer, by the way, was 4/3 cu. ft. Below is the last POTW for the academic year. You have about five months to solve it.



Take a square piece of paper with sides of length 1 and draw on it a quarter-circle of radius 1 with center at one of the vertices. Fold the paper over so that the vertex which is the center of the circle just touches the quarter-circle. See the figure above left. What is the largest and smallest areas that the shaded triangular region can have?

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

Puzzle of the week...

Solvers of the PuOTW from v21.08 included **Dustin Dorsey**, **Scott Johnson**, **Carol Knicker**, **Brietta Schluender**, and **Billie Siegfried**. Ane here you have the last Puzzle of the academic year.

There are 100 marbles in five bags. The first and second bags contain 52 marbles between them; the second and third together contain 43; the third and fourth contain 34, and the fourth and fifth contain 30 marbles. How many marbles are there in each of the five bags?

Submit 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.

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The bi-weekly newsletter of the Department of Mathematics at Augsburg College

Editor.....Kenneth Kaminsky <kaminsky@augsburg.edu>

Born on this day — Victor Alexandre Puiseux

Born April 16. 1820 in Argenteuil, Val-d'Oise, France, Victor Puiseux's family moved to Lorraine when he was only three years old and he was brought up in that region of France. He attended the Collège de Pont-à-Mousson then, in 1834, he entered the Collège Rollin in Paris where he attended lecture courses by Charles Sturm.

Victor received prizes in physics in 1836 then a mathematics prize in 1837, the year he graduated and entered École Normale Supérieure. Here he became friends with Briot and Bouquet and, in 1840, he was placed first in his final examination. The following year he was awarded his doctorate for a thesis on astronomy and mechanics in which he studied planetary orbits. His thesis is a competent piece of work without showing much in the way of originality.

From 1841 until 1844 Puiseux was professor of mathematics at the Collège Royal in Rennes then, until 1849, he was professor of mathematics in the Faculty of Science in Besançon. During this period he published a series of papers in Liouville's Journal. He wrote on geometry, where he discovered new properties of evolutes and involutes and mechanics where he studied the conical pendulum, the tautochrone and similar topics.

After this Puiseux held a number of posts. He worked at the École Normale Supérieure during the years 1849 to 1855 and again between 1862 and 1868. From 1855 to 1859 he worked at the Paris Observatory. In 1857 he was appointed professor of mathematical astronomy at the Faculty of Science, after teaching courses for Le Verrier, where he succeeded to Cauchy's position. From 1868 to 1872 Puiseux held a post at the Bureau de Longitudes.

Puiseux had attended courses by Cauchy early in his career and he soon became interested in research in topics Cauchy was studying. He further developed Cauchy's work on functions of a complex variable, being the first to distinguish poles, essential points and branch points. He examined series expansions and looked at series with fractional powers. Although his work in this area was exceptionally good it became rather redundant after Riemann introduced the concept of a Riemann surface.

Laplace's theory of the Moon, presented in 1787, had been shown to be inadequate by Adams in 1853. Puiseux contributed to the problem of the acceleration of the mean motion of the Moon and his work was used by Hill in his more precise understanding of the lunar motion in 1877.

Puiseux also worked on elliptic functions and studied computational methods which were used to reduce astronomical data. He was elected to the mathematics section of the Academy of Sciences in 1871 where he succeeded Lamé. Bertrand says of his election:

The election was due to his merit, but its unanimity, to his character.

Puiseux was a keen mountaineer and was the first to scale an Alpine peak which is now named after him. As a last wish he requested that no discourse should be held over his body. His profound faith helped him to bear with resignation the death of a devoted wife and of four grown children. Puiseux died September 9, 1883 in Frontenay, Jura, France.

[4]Article by: J J O'Connor and E F Robertson