L'Augarithms

Mathematics Colloquium FALL Lineup

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

Sep.	16	Annual Meet and Greet (the Department, that is)
Sep.	30	Ben Jordan, Harvard University, "The procession of math science and art"
Oct.	21	Al Garver, Augsburg College, "(0, 2) - Graphs and Young Tableaux"
Nov.	4	Ken Kaminsky, Augsburg College, "Force of Mortality, Elves, Vampires, and more"
Nov.	18	John Singleton and Ben Hoffman, URGO Project with Pavel Bělík, "Bundle gerbes and their many splended uses
Dec. →	2	Steve Fredlund, Augsburg '92, "Assessing Market Risk"

This week's speaker

Steve Fredlund is a 1992 graduate of Augsburg College with a major in mathematics. He spent the first 16 years of his career working for Thrivent Financial (formerly Lutheran Brotherhood), a Fortune 500 financial services company. The bulk of Steve's corporate career was as an actuary in primarily non-traditional roles. In his final 6 years at Thrivent, Steve worked as an Investment Actuary in the Asset Liability Management area. Steve is the co-holder of the patent on the Thrivent Retirement Income Optimizer (TRIO) and received the Chairman's Award in 2006 for his efforts in starting, implementing, and managing Thrivent's capital market hedging program. In March 2009, Steve left Thrivent to work on the staff at New Hope Community Church in Cambridge as their Executive Pastor. He also teaches business (undergraduate and MBA level) on an adjunct basis at Bethel University and St. Mary's University.
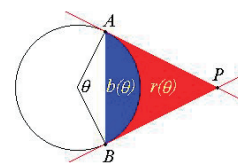
Steve's talk will focus on assessing market risk embedded in variable annuity products and how derivatives (futures, options, etc.) are used by insurance companies to mitigate those risks. Capital markets hedging is a crucial and growing part of nearly every financial services company and there is great opportunity for actuaries (who understand the insurance side of things) or other math-minded folk who are interested in investments.

Mathy Humor

1. Infinitely many mathematicians walk into a bar. The first one orders a pint, the second one a half pint, the third one a quarter pint. . . . "I get it!", says the bartender and pours out two pints.
2. *Q*: What purple and commutes?
   A: An abelian grape?
3. α: Which is better: a ham sandwich, or eternal happiness?
   β: A ham sandwich?
   α: Wrong. A ham sandwich is better than nothing, and nothing is better than eternal happiness.
4. Teacher: Bobby, if your father had 10 dollars and you asked him for six dollars, how many dollars would your father have left?
   Bobby: Ten.
   Teacher: You do not know your math.
   Bobby: You do not know my father.

Problem of the week...

We had two solvers of the POTW from vol. 23.05. They were **Ryan Brown**, of White Bear Lake High School, North Campus, and **Al Jibra** of the MathRocks University. The got $(1/6)\sqrt{3}$. And here you have the new problem:

In a circle of radius 1 draw a central angle θ joining points *A* and *B* on the circumference of the circle. At these points draw the tangent lines to the circle and let *P* be their point of intersection. Let $b(\theta)$ and $r(\theta)$ be the area of the darker-shaded, respectively lighter-shaded regions shown in the sketch above. What is

$$\lim_{\theta \to 0}\{r(\theta)/b(\theta)\}?$$

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Puzzle of the week...

Ryan Brown, of White Bear Lake High School, North Campus, and **Al Jibra** of the MathRocks University both got $3 + \pi$ inches for the electric razor puzzle of vol. 23.05. **Polly Nomial**, no known address, was unable to stop and went around twice winding up with $2(3 + \pi)$. Here is the new puzzle.

A man spent one-fourth of his life as a boy, one-fifth of his life as a youth, one-third of his life as a man, and the final thirteen years of his life as an old man. How old was the man when he died?

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.

Gott Nytt År   Buon Natale

Merry Christmas

Arabaina tratrin'ny Krisimasy

GODT NYTT ÅR

Joyeux Noël   חג שמח   Kesimasi va gɔ

God Jul   Arabaina tratrin'ny Taom-baovao

Vrolijk Kerstfeest   Godt Nyt År

FRÖHLICHE WEINACHTEN   Buon Capodanno!

聖誕快樂   Feliz Navidad

Happy New Year

Счастливое Рождество

メリークリスマス Próspero Año Nuevo

Baga Ayyaana Waggaa Geessan!!

NYOB ZOO XYOO TSHIAB

Bonne Année

Susan Jane Cunningham (1842-1921)

(1842-1921) Susan Cunningham was born in Virginia. She studied astronomy and mathematics at Vassar College as a special student during 1866-67, working with Maria Mitchell, who encouraged so many Vassar students to continue in astronomy. She also took special courses in astronomy and mathematics during several summers at Harvard University, Princeton University, Newnham College at Cambridge, the Greenwich Observatory in England, and Williams College. In 1869 she helped to begin the astronomy and mathematics departments for the opening of Swarthmore College. She headed those two departments until her retirement from Swarthmore in 1906, rising through the ranks from instructor to full professor. In 1888 Swarthmore presented her with the honorary degree of Doctor of Science, the first degree of this kind given by that institution.

Practically the whole life of Susan Cunningham was involved with the founding and development of Swarthmore. In 1906, President Swain said:

Susan J. Cunningham has the distinction of being the only one in the faculty who has been connected with the College since its beginning in 1869. She is energetic, forceful and learned in her profession, and a thorough believer in the gospel of work. She has loved Swarthmore more than her own life, of which she has unsparingly given. She has in season and out of season been ready not only to serve the College but to help individual students by giving them her advice, her time and in numerous cases her money.

Cunningham planned and equipped the first observatory at Swarthmore. She lived in the building until her retirement in 1906. Swarthmore paid $100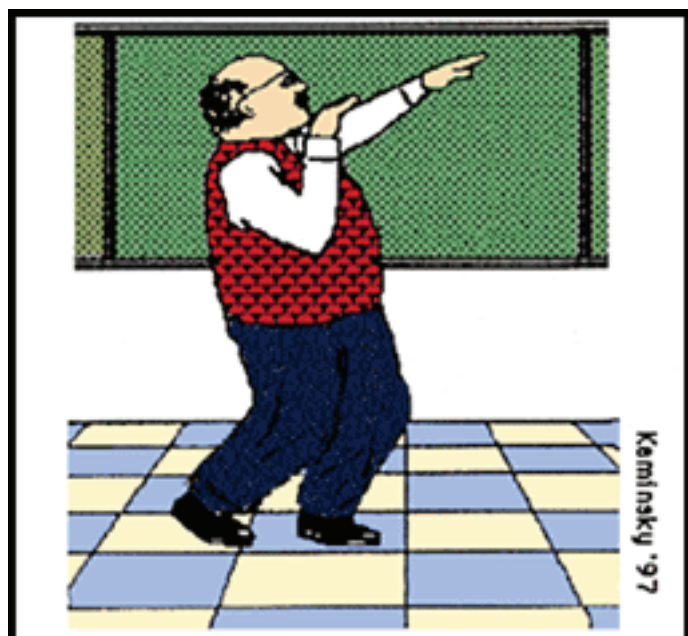 rent per year to her for the rest of her life, and upon her death in 1921 Cunningham Observatory became college property. The original President's House was converted into a second observatory to house research quality astronomical equipment donated by William Sproul, a former student of Cunningham. At the time of her retirement, the then Senator Sproul gave the following tribute to Susan Cunningham:

No figure stands out more prominently than that of Doctor Cunningham. She has been a believer in honest work for herself and for her students as well. In her make-up, sham and superficiality have no place. Her straightforwardness in speech and in method in her classroom and in her daily life has left an influence for good on hundreds who have been here. Swarthmore has been and is the object of her devotion; to the college has been given the efforts of her best years of a remarkable life. In every success of the institution since the first student entered its door she has shared; in all its vicissitudes she has been ready with a helping hand. I fervently hope that our college may always stand for the principles of cleanliness, morality and intellectual honesty for which she has stood, and now as another of these strong leaders who have piloted the college out of the narrow channel of obscurity into the broad, deep sea of success steps down from the post where she has stood through nearly forty years, may the course that she has laid out be followed and Swarthmore go on to a splendid realization of the plans of the devoted founders.

In 1891 Cunningham was elected a member of the New York Mathematical Society (later to become the American Mathematical Society), one of the first six women to join this organization. She remained a member until her death in 1921.

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Cartoon Corner

Keminsky '97

It came to Professor Fogelfroe in a dream—how to teach limits through interpretive dance.