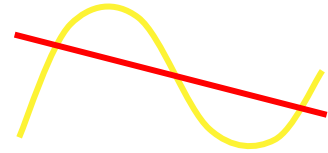


Functions and Lines



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Departmental Events 2005-6

- September - Colloquium speaker (page 3) and first meeting of the Math Club
- October - Colloquium speaker and Mathematics Day
- November - Colloquium speaker (page 3)
- December - Putnam Competition (page 1)
- January - Colloquium speaker
- February - Modeling Contest (page 4)
- March - Colloquium speaker and Midwest Undergraduate Mathematics Symposium (page 2)
- April - Senior Seminar final presentations (page 1) and Honors Convocation (page 3)
- May - Senior Celebration

Seniors Present Research Papers

Simpson College mathematics majors must complete a research project before graduation. Six seniors did research in the fall of 2004, and the remaining 5 worked in the spring.

The seniors doing research in the spring of 2005 are Chrissy Hendricks, Lwanda Manxodidi, Taylor Rettig, Aye Win and Brad Allen. Shikha Basnet completed Senior Seminar as a junior and plans to continue her research in evolutionary game theory in her final year in order to complete the Mathematics with Honors program.

Dr. Dunning and Dr. Spellerberg advised the senior seminar students in the spring of 2005, and the students worked on topics including applications of game theory to college budget allotments, the prisoner's dilemma and cryp-

tology.

Laura Becker, who did her research in the fall, and Lwanda Manxodidi presented their results at the Midwest Undergraduate Mathematics Symposium in April 2005.

The next Senior Seminar

course is in the spring of 2006. All the faculty of the Mathematics Department will share the supervision of the 8 students doing research in computer aided geometric design, probability, game theory, graph theory, topology and complex analysis.



Chrissy Hendricks, Lwanda Manxodidi, Shikha Basnet, Taylor Rettig, Aye Win and Brad Allen present their Senior Seminar papers spring 2005.

Simpson Participates in Putnam Competition

The William Lowell Putnam Competition is offered to undergraduate mathematics students in the United States and Canada. The 6-hour exam held on the first Saturday of each December consists of 12 questions from discrete and continu-

ous mathematics.

The competition began in 1938 as a way for the students at Harvard and Yale to compete with each other academically. Simpson has participated in the competition since 1992.

Shikha Basnet and Shristi Upreti participated in the Putnam Competition this past December. We hope that a seminar to discuss questions from previous exam will be held in the fall.

Mathematics Majors Can Do Anything

We say that our graduates can do anything they want, and they continue to prove that. Here are just a few examples of what our graduates do.

Cam Christensen (Math, CmSc '97) works for CDS in Des Moines. He develops and maintains database software used by the company to track and forecast purchasing habits of magazine subscribers.

Mike Durrell (Math, Chem '98) has a Ph.D. in developmental biology from Scripps Research Institute. He works for Angiosyn in San Diego as a research scientist.

James Myers (Math, '99) is a field

claims adjuster with Amica Mutual Insurance Co. in Hartford, CT. He investigates liability, bodily injury, and personal property claims, then settles or prepares those claims for litigation. He holds the Insurance Institute of America's Associate in Claims (AIC) designation. When asked how Simpson prepared him for his job, James said, "I can honestly say that I use the problem-solving and analytical skills that I learned while studying mathematics at Simpson on a daily basis."

Jared Gerlock (Math '00) taught high school for 3 years, and has finished a Masters in Mathematics from the University of Arkansas.

His plans include getting a Ph.D. in mathematics and teaching college.

"... I use the problem-solving and analytical skills that I learned while studying mathematics at Simpson on a daily basis."

James Myers, Math 1999

Simpson Hosts MUMS

The Midwest Undergraduate Mathematics Symposium (MUMS) was held on Saturday, April 9, 2005, on the Simpson campus.

Undergraduate students of mathematics and related fields used the symposium as an opportunity to share their work with others.



Mandi White, Lindsay Saunders and Kelli Esbaum present a paper on toll booth optimization at MUMS.

Dr. Deanna Haunsperger (Math '88) and Dr. Stephen Kennedy of Carlton College gave two plenary addresses. In the morning, Drs. Haunsperger and Kennedy discussed how to use mathematics to fairly divide a piece

of cake among 2, 3, 4, ... people. Dr. Haunsperger then talked about the mathematics of elections in the afternoon session.

Sixty students and faculty attended the symposium. There were 13 talks about undergraduate work and research given by 17 undergraduate students, 2 graduates and 1 faculty member. The speakers represented Drake University, the University of Northern Iowa, Iowa State University, the University of Iowa and Simpson College. The topics included evolutionary game theory, results of the modeling contest, an undergraduate supercomputer project, kinship relationships, applications of game theory to bird parasitism and undergraduate programs in mathematics and statistics.

The next MUMS will be in Spring 2006.

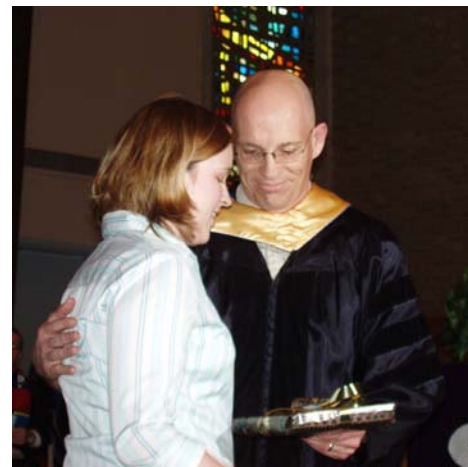
Bennett is Outstanding Senior

The Mathematics Department selected Ashley Bennett as the Outstanding Senior for 2005. Ashley graduated from Simpson 2005 with a degree in mathematics and a certification in secondary education.

Ashley competed in the Mathematical Contest in Modeling for 3 years and her team received a Meritorious ranking for two of their papers, the second highest ranking given in the contest. She has presented papers at the

Mathematics on the Northern Plains conference in Vermillion, South Dakota, and at the Midwest Undergraduate Mathematics Symposium. She attended a Research Experience for Undergraduates with the Department of Statistics at ISU in the summer of 2004. Ashley did her student teaching in the spring of 2005.

She will attend Oklahoma State University beginning in the fall to pursue a graduate degree in mathematics.



Dr. Spellerberg awards Ashley Bennett for outstanding work.

“What can I do with a math major?”

“Anything you want.”

**Conversation between a
student and professor
in Calculus class**

Department Hires New Faculty

Dr. Debra Czarneski is filling the position opened when Dr. Dunning retired. Dr. Czarneski's specialization is graph theory. She attended Mount Mercy College and received a Ph.D. from Louisiana State University in May 2005.

A sabbatical leave for Dr. Spellerberg gives us the opportunity to hire an adjunct for a couple of our daytime courses. Dr. Bill Schellhorn will teach Inter-

mediate Algebra on campus in the fall, and a other courses in West Des Moines and Ankeny. Dr. Schellhorn is an Iowa native and received a Ph.D. from LSU where he did research in knot theory.

Both Dr. Czarneski and Dr. Schellhorn will be giving colloquium talks in the fall on their respective areas.

Spellerberg Researches Game Theory

Recently, Dr. Rick Spellerberg has been doing research in game theory. Several students have been working with him on developing algorithms for optimization of strategies in evolutionary game theory.

Laura Becker (senior), Lwanda Manxodidi (senior), Shikha Basnet (junior), Casie Schmitt (first-year)

and Tracy Robson (first-year) presented papers on evolutionary game theory at the Midwest Undergraduate Mathematics Symposium in April 2005. Dr. Spellerberg supervised the research of these students.

In 2005, Dr. Spellerberg presented a paper at the Iowa Section of the Mathematical Association of

America and another on the Prisoner's Dilemma school at the Iowa Council of Teachers Mathematics meeting. This summer, Dr. Spellerberg attended the International Conference on Game Theory at SUNY Stony Brook.

Dr. Spellerberg is taking sabbatical in the fall of 2005 to continue his study of game theory.

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Familiar things happen, and mankind does not bother about them. It requires a very unusual mind to undertake the analysis of the obvious.

Alfred North Whitehead

www.simpson.edu/math

SIMPSON COLLEGE

The Mathematics program at Simpson is designed to give students an opportunity to develop a mathematical foundation as a tool for understanding the world and society in which they live. The curriculum allows students to develop their problem solving and deductive reasoning skills and enhances their ability to model the present and predict the future status of systems in a changing world.

The department prepares students for either graduate study, careers in secondary education or employment in a mathematically related field. The teaching and learning process incorporates modern technology to assist students in a developing critical analytical skills. Oral and written communication are integrated into the program to help students develop the confidence and poise needed to fully participate in their chosen career.

Students Compete in Modeling Contest

Five teams of Simpson students participated in the Interdisciplinary and Mathematical Contests in Modeling. The contests are held in February and are sponsored by the Consortium for Mathematics and its Applications.

Teams of 3 students are given 96 hours solve and write up the solution to a real-life problem. The papers are judged on the mathematics, analysis and presentation. The top 1-3% of the competitors receives a ranking of Outstanding, about 16% are ranked Meritorious, and Honorable Mention is awarded to the next 30% of the participants.

The Simpson teams for 2005 were
– Mandi White, Lindsay Saunders,

Kelli Esbaum,

– Jean Clipperton, Casie Schmitt, Tracy Robson,

– Chris Fink, Nick Phillips, Om Gurung (Honorable Mention),

– Greg Elliott, Scott Roth, Prakash Kayastha (Honorable Mention) and

– Lwanda Manxodidi, Shikha Basnet, Maya Hristakeva (Honorable Mention).

Four of the teams presented their papers at MUMS April 2005.

We are planning a Modeling Seminar in the fall,

which will be a good opportunity to learn about mathematical modeling, testing and analysis of models and to prepare for the contest.



Om, Chris and Nick work on a model for global water use.