

FUNCTIONS AND LINES

MATHEMATICS DEPARTMENT, SIMPSON COLLEGE

Students Take Honors in Modeling Contest

This year Simpson hosted 6 teams in the Mathematical and Interdisciplinary Contests in Modeling. The contests were held on the first weekend of February 2004. More than 700 teams competed in the 2 international contests which are sponsored by the Consortium for Mathematics and its Applications.

The modeling contests require a team of 3 undergraduate students to solve and write up the solution to a specific real-life problem in 96 hours. The teams can use any inanimate resources, including the internet, in their research.

Papers are judged on the quality of the solution, how well the solution is tested and analyzed, and the manner in which the solution is presented. The top 1-3% of the competitors receive a ranking of Outstanding, approximately 16% are ranked Meritorious, and Honorable Mention is awarded to the next 30%.

This is the first year that we have had 2 teams from Simpson receive rankings of Meritorious. One of our teams also received an Honorable Mention.

The Simpson teams for 2004 were

— Teresa Kreykes, Ashley Bennett and Anita Zahs (Meritorious),

— Shikha Basnet, Maya Hristakeva and Lwando Manxodidi (Meritorious),

— Greg Elliott, Micah Muller and Scott Roth (Honorable Mention),

— Shristi Upreti, Aye Win and Amber Woodley,

— Anuj Kachapati, Prakash Ka yastha and Kumud Poudel, and

— Tony Breitbach, Jean Clipperton and Kris Langgaard.



Shikha Basnet, Lwando Manxodidi and Maya Hristakeva present their solution to the crowded theme park problem at the Midwest Undergraduate Mathematics Symposium

Kolpin to Talk on Game Theory

Dr. Van Kolpin of the University of Oregon will be visiting the Mathematics Department this fall. As part of the Simpson Forum series, Dr. Kolpin will give a talk on game theory titled "The Evolution of Strategy: A Force for Business, Society, Science and Life".

Dr. Kolpin received his Ph.D. in Mathematics from the University of Iowa in 1990 and is currently the chair of the Economics Department at the University of Oregon.

In addition to the general game theory talk, he will present a more technical

treatment of game theory to the students in Senior Seminar. Any students with questions about game theory or graduate school programs in mathematics is invited to meet with Dr. Kolpin individually.

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New Fund to Benefit Mathematics Students

The Mathematics Department announces an endowed fund to benefit mathematics students.

The income from the "Mathematics Student Research Fund" will be used to support programs for undergraduate mathematics students. This fund will help provide money for travel so that our students can present papers at regional or national meetings. The money might also be used to bring speakers or other programs to campus.

Anyone interested in helping to build the fund can contact the College Advancement Office at 515-961-1549.

Sloan Selected for Harold Watson Lecture Series

Dr. Bruce Sloan will present the Harold Watson Lecture on October 28, 2004, in Camp Lounge of Brenton Student Center. The title of the talk is "Two Mathematical Revolutions" and will introduce the development of mathematics in the early Greek period and the seventeenth century.

Dr. Sloan began teaching at Simpson College in 1988. He received an Ed.D. in

Mathematics, College Teaching from Oklahoma State University in 1972.

He began working on the history of mathematics in 1998 when he participated in a program with the Institute for the History of Mathematics. This talk will illustrate just a part of the historical perspective Dr. Sloan has been able to provide to our students.

Department Offers Honors Degree

It is now possible for a student to receive a mathematics degree with an honors designation.

To receive a designation of Honors in Mathematics, a student must demonstrate outstanding work in mathematics and complete the following requirements:

- Complete a mathematics major with a major GPA of 3.5 or higher.
- Complete a major or minor in a related field with a GPA of 3.5 or higher.
- Receive a grade of A in Senior Seminar.
- Complete three additional hours of research.
- Write and defend a thesis.
- Participate in at least 4 mathematics-related extracurricular activities.

Related majors and minors include Economics, Physics, Computer Science or Biology. It is understood that only the most outstanding students may receive a designation of honors in mathematics.

"Mathematics majors can do anything."

Spellerberg is New Chair

Professor Rick Spellerberg was appointed chair of the Mathematics Department in fall 2003. Dr. Spellerberg succeeds Dr. Bill Dunning who served as the chair of the department from 1984-2003.

Dr. Spellerberg came to Simpson College in 1990 after receiving a Ph.D. in Mathematics from the University of Iowa. He was granted tenure in 1996 and promoted to full professor in 2003.

For the past few years Dr. Spellerberg has been working together with undergraduate students on research in game theory. He presented a paper on "The Sequence Prediction Game" at the Iowa Section Meeting of the Mathematical Association of America in Pella, Iowa, in April 2004. Undergraduates Lwando Manxodidi, Shikha Basnet and Jean Clipperton worked with Dr. Spellerberg during May Term 2004 on an algorithm for optimal marriage pairing, another game theory application.

Undergraduate Mathematics Symposium

The Midwest Undergraduate Mathematics Symposium was held on Saturday, March 27, 2004, on the Simpson campus. The purpose of the symposium is to promote undergraduate research in the mathematical sciences. Students and faculty who are involved in or want to be involved in undergraduate mathematics research were invited to attend. Undergraduate students of mathematics and related fields used the symposium as a way to share their work with others.

Dr. Tim Pennings of Hope College gave two plenary addresses, "Chaos: New Mathematics Reveals the Inner Workings of Nature" and "Do Dogs Know Calculus?" Dr. Pennings provided the participants with a brief introduction into his research in dynamical systems and modeling.

There were 60 participants at the symposium representing 8 educational institutions and a variety of other organizations. Twenty students and professors provided 9 presentations and 2 posters. The topics ranged from thumb-



Some of the Simpson students who presented at the Symposium.

print identification to quadratic reciprocity to the undergraduate supercomputer project at the University of Iowa.

A panel consisting of an actuary, a 2-year college mathematic professor, a virtual reality designer, and a research mathematician answered questions from the participants about opportunities for undergraduate during and after graduation.

The 2005 Symposium will be held on April 9 and will feature Dr. Deanna Haunsperger, a 1986 Simpson mathematics major.

"...topics ranged from thumbprint identification to quadratic



Teresa Kreykes is Outstanding Senior in Mathematics for 2004.

Kreykes is Outstanding Senior

The Mathematics Department selected Teresa Kreykes as the Outstanding Senior in Mathematics for 2004. Teresa graduated from Simpson in May 2004 with degrees in mathematics and computer information systems.

Ms. Kreykes participated in the Mathematical Contest in Modeling for three years while at

Simpson. In 2003 and 2004, her teams received Meritorious rankings, the second highest ranking given in the contest.

Teresa also contributed to the college by working for Information Services and was instrumental in developing the current degree audit program.

In the fall of 2004, Teresa will

begin work on a master's degree in information technology at Illinois State University.

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“There is no branch of mathematics, however abstract, which may not some day be applied to phenomena of the real world.”
Nikolai Lobatchevsky

Professor Receives Teaching Award



Professor Murphy Waggoner talks with Amanda Arrington and Joe Behmer in algebra class.

Murphy Waggoner, associate professor of mathematics, recently received the teaching award given by the Iowa section of the Mathematical Association of America (MAA). Waggoner, who has taught at Simpson since 1992, was recognized at the MAA meeting held at Central College in Pella on Saturday, April 17.

The award, which is greatly esteemed in academic mathematics, qualifies Waggoner for the national award with the Mathematical Association of America, to be announced at a later date.

Rick Spellerberg, chair of the department, nominated Waggoner for the award based on her exceptional qualities as a math professor and her exemplary track record at Simpson.

"Since arriving at Simpson, Murphy has been instrumental in shaping the goals and vision of the mathematics department," writes Spellerberg. He goes on to write that Waggoner continuously assesses her teaching style in an effort to find a philosophy of teaching that best helps her students learn and develop as mathematicians.