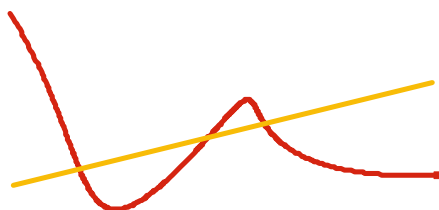


Upcoming Events

- > Math Department Ice Cream Social
- > Midwest Mathematical Modeling Contest at University of Iowa, October 25-26
- > Mathematics Day, Saturday, November 8
- > Putnam Exam, First Saturday in December

Functions and Lines



Heidi Feller Becomes Heidi Berger and Assistant Professor

We are excited to welcome Dr. Heidi Berger as the fifth member of the mathematics faculty beginning in the fall. This addition to the department will allow us to expand the variety of undergraduate research projects available for students since Dr. Berger's specialization is in time scales calculus, difference equations and differential equations.

Heidi was born and raised in Cedar Rapids. She graduated from Coe College in 2002 with majors in mathematics and physics and a minor in English. While at Coe, Heidi participated

in undergraduate research on the structure of glass. She then received an M.S. (2004) and a Ph.D. (2008) in mathematics from the University of Nebraska-Lincoln. While at UNL, she also worked with in-service middle school teachers from across Nebraska.

Heidi has been accepted into Project NExT, a two-year program of the Mathematical Association of America for the professional development of new college professors. She attended her first NExT sessions at MathFest in Madison, Wisconsin,

in August.

In her spare time, Heidi enjoys traveling, reading, cooking, and is looking for good eggplant recipes. She also enjoys visiting sloths in the zoo and has adopted a sloth at the Lincoln's Children's Zoo. This summer, Heidi married Howard Berger, a meteorologist who researches ways to improve hurricane forecasting. Heidi and Howard will be moving into their new home in Des Moines the first week in August.

MUMS Held for Fifth Year

Simpson hosted the fifth annual Midwest Undergraduate Mathematics Symposium (MUMS) on April 4-5, 2008. MUMS is a conference to highlight independent work in mathematics by undergraduates. This year the conference started on Friday night with pizza, viewing the movie *Flatland*, and games. Saturday morning, Dr. Jeff Johannes from SUNY Geneseo gave the plenary address, *Game: SET - and Math*. The rest of the day was dedicated to student presentations and informal conversations with industry and graduate school

representatives.

The 100 people attending MUMS represented a wide variety of schools including Coe, Luther, Loras, Wartburg, Morningside, Simpson, University of Iowa and Central Academy. There were 16 students who gave oral presentations and 18 who gave poster presentations. The topics ranged from understanding DNA using knot theory to using mathematics for modeling wealth distribution. Several teams who participated in the Mathematical Contest in Model-

ing (MCM) and the Interdisciplinary Contest in Modeling presented their results on the problems of developing Sudoku games and modeling the effects of global warming on the coastline of Florida. Two groups of students from Central Academy presented their results from the high school MCM, for which they received a regional Outstanding and a national Outstanding ranking, respectively. Faculty members from Morningside and Luther gave presentations on their undergraduate programs.

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Mathematics Doesn't Take a Summer Vacation

At least 12 of our students have chosen to continue their mathematical experiences into the summer by participating in research programs and internships. These opportunities have spread our students across the country, from Oregon to North Carolina.

Erin Vinnedge, Chelsy Croson, Emily Lundt and Lynnette Snyder, four of our Simpson mathematics students, were accepted into Research Experiences for Undergraduates (REUs) at other schools. Generally, REUs provide students with a stipend and housing while they work on open-ended problems. Six students worked on the Simpson campus this summer as part of the Albert H. & Greta A. Bryan Summer Research Summer Program in Mathematics. Several other students found internship opportunities in mathematical fields.

Erin Vinnedge worked with three other students at an REU at the Worcester Polytechnic Institute modeling the growth of specific

brain tumors in their project *A Macroscale Model for the Growth of Glioblastoma Multiforme Incorporating Tumor Cell Heterogeneity*. The project was sponsored by IBM.

Chelsy Croson spent the summer at the University of North Carolina at Asheville. Her REU work, *From cycles to wheels: a beginning look at homomorphisms and color-criticality*, addressed the necessary properties for a graph to be colored in a specific way.

Emily Lundt worked with the Summer Institute for Training in Biostatistics at the University of Wisconsin in Madison.

This summer, Lynnette Snyder wrote the paper *Competitive Color Graphing: The 1-Relaxed Game Chromatic Number of Paths and Extended Stars*. This was completed as part of the Willamette Valley Consortium for Mathematics Research in Oregon, where the REU program is for both pre-service and in-

service mathematics teachers.

Another mathematics student, Alonzo Barkley, attended a summer research program at physics at Coe College.

This summer was the first summer of the Albert H. & Greta A. Bryan Summer Research Summer Program in Mathematics. The Bryan's funded this undergraduate research program to allow us to provide an REU experience for first and second-year students. Two groups of three students worked on projects in graph theory and game theory. The students presented their work to prospective college students during a summer recruiting event, and then again at MathFest in Madison, Wisconsin. Emily Wagoner, Katrina Housholder and Chad Onstot compared various auction methods, and Michelle Lingscheit, Kiersten Ruff and Jeremy Ward wrote a paper on graph labeling. Michelle, Kiersten and Jeremy won an award from the Mathematical Association of America for their presentation in Madison.

Several students worked as interns for Principle Financial Group this summer, including Eric Smith, who worked in an actuarial area. Dillon McKelvey also worked with actuaries, but at Summuns Annuity Group. Andrew Dau was an intern at the National Agricultural Statistics Service Field Office in Des Moines.

Mighty is geometry; joined with art, resistless.

Euripides



2008 Bryan Summer Research Program in Mathematics students and faculty: (left to right, back to front) Jeremy Ward, Chad Onstot, Michelle Lingscheit, Rick Spellerberg, Deb Czarneski, Kiersten Ruff, Emily Wagoner and Katrina Housholder.

Students Make Connections with the Department of Agriculture

Many of our students are taking advantage of the opportunities offered by the National Agricultural Statistics Service (NASS) of the United States Department of Agriculture both here in the Midwest and in Washington, DC. This connection began several years ago when Joseph Prusacki of the NASS came to MUMS as an industry representative and talked to some of our students. Since then, several of our students have been fortunate to obtain internships and full time jobs. Prusacki is now based in Washington, DC, as the Director of the Statistics Division of the NASS.

In June 2008, two of our mathematics graduates started work-

ing for NASS. Ashley Hopp works in the NASS Illinois Field Office in Springfield, and Casie Schmitt works at the North Dakota Field Office in Fargo. Ashley began her career at NASS by completing an internship at the Des Moines Field Office in the summer of 2007.

In addition, this summer, Andrew Dau has been working as an intern for the Des Moines Field Office. Andi Werger will be an intern for NASS during the fall semester as part of Simpson's Capitol Hill Internship Program.

We hope that this mutually beneficial relationship between the NASS and Simpson College will continue.



Ashley Hopp works for the NASS Illinois Field Office in Springfield.



Casie Schmitt works for the NASS North Dakota Field Office in Fargo.

Mathematics is no more computation than typing is literature.

John Allen Paulos

Piecewise Student News

- Casie Schmitt was named Outstanding Senior in Mathematics for 2008. In her Senior Seminar project, she studied how random numbers can be used to simulate behavior. As part of her project she simulated the game show "Deal or No Deal".
- Tracy Robson and Jonna Anderson graduated with Honors in Mathematics this year, making a total of four students who have finished the honors program. Tracy did work in knot theory and its applications to the study of DNA, and Jonna used Ginni coefficients as a measure of the viability of wealth distribution schemes.
- Eric Smith and Chad Onstot both passed actuarial exams this summer. Eric will be a junior in the fall and passed Exam P in May, which was the second actuarial exam he has completed. Chad Onstot, a sophomore in the fall, passed Exam P in July.
- Emily Lundt will be spending Fall 2008 in Hungary at the program *Budapest Semesters in Mathematics*, which provides a unique opportunity for North American undergraduates. Through this program, mathematics and computer science majors in their junior/senior years may spend one or two semesters in Budapest and study with eminent Hungarian scholar-teachers.
- Tracy Robson was accepted to the Women & Mathematics Program at the Institute for Advance Study at Princeton University, and so she spent her last May Term before graduation in New Jersey. The program brings together research mathematicians with undergraduate and graduate students for an intensive 11-day workshop on the campus of the Institute for Advanced Study.
- After graduation from Simpson this summer, Jessica (Irvin) Fletcher will be pursuing a Masters of Arts in Teaching at Simpson.

Tracy Robson and her parents create knots and links..



Find more information at
www.simpson.edu/math.

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 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.

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Do Math and You Can Do Anything!

Piecewise Faculty News

- Simpson was well represented at MathFest in Madison, Wisconsin, in August this year. In addition to the 6 students who attended, all of our mathematics faculty attended, included our new professor of mathematics, Heidi Berger.
- Three of the Simpson faculty presented papers at MathFest. In the session on "Integrating Biology and Mathematics", Bill Schellhorn gave the talk *Using Knot Theory to Model DNA: An Undergraduate Research Project* reporting on the work that he and Tracy Robson did as part of Tracy's Honors Major.
- Rick Spellerberg talked about how he has worked with students on interdisciplinary research in mathematics and philosophy in the MathFest session on "Incorporating Humanities and the Arts into the Mathematics Classroom (and Vice Versa)".
- Also at MathFest, Murphy Waggoner gave a presentation highlighting the undergraduate research of Sam Tunell and Maria Wadle, pre-service mathematics teachers, in the talk *Computer-Aided Geometric Design, Geometer's Sketchpad and Secondary Mathematics*.
- Bill Schellhorn attended the Council on Undergraduate Research national meeting in June at the College of Saint Benedict in Minnesota.
- Rick Spellerberg was one of the three nominees for the student selected Distinguished Faculty Award in 2008. The award, given to stimulate and reward excellence in teaching, was presented to Brian Steffen, professor of communication studies. Jeff Parmelee, associate professor of biology, was also a nominee.
- Deb Czarneski and Bill Schellhorn have been involved in Iowa NExT, a professional development program sponsored by the Iowa Section of the Mathematical Association of American. Deb and Bill attended training sessions at the Section meeting held at Simpson in April.



Sam Tunell presents a poster at MUMS on Bezier Curves.