

2008

The Wright Message, 2008

University of Northern Iowa. Department of Mathematics.

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Department of Mathematics

The WRIGHT Message 2008

New Faces in the Department

Dr. Elizabeth Hughes joins our Mathematics Education faculty. She earned her Ed. D. degree in mathematics education from the University of Pittsburgh in 2006. She also has experience as both a middle and high school teacher and her research is in the area of developing both pre-service and practicing teachers' mathematical knowledge for teaching and, in particular, has investigated lesson planning as a way to focus on the mathematical thinking of students.

Vicki Oleson taught for many years at the Malcolm Price Laboratory School and then augmented our department teaching math content and method courses to pre-service elementary education majors. She formally transferred to our department as a faculty member this year and is serving as director of the Center for Teaching and Learning Mathematics.

Deb Blanchard keeps our office running smoothly as our Secretary III and **Betty Bagenstos** will join her in August as our new Secretary II. We said goodbye to Mary Friedrich who accepted a position in Information Technology Services.

Three people join the department as professional staff in the Center for Teaching and Learning Mathematics. **David Jones** is Project Coordinator on sponsored projects. He earned his MBA at Pepperdine (2004) and is certified in Project Management and Systems Analysis. He has spent the majority of his career in information technology project management, compliance, and management accountability. **Deb Rich** has the title Literacy Specialist/Project Manager for Project SOAR. She earned her MA in Reading Education, and is nearing completion of her Ed.D. in Educational Leadership. **Sandra Ubben** has worked for the Mathematics Department for 22 years as an instructor. She is currently working with the

Student Online Achievement Resources (SOAR) project and the Department of Defense Education Activity (DoDEA) project as a Mathematics Specialist.

New Mathematics Education Center

The Mathematics Department is now home to the **Center for Teaching and Learning Mathematics (CTLM)**. The activities of the center enable us to impact mathematics education beyond the campus borders and enhance our academic mission of educating UNI students. The Center for Teaching and Learning Mathematics is committed to improving mathematics education and seeks to assist teachers, students, and parents in making sense of mathematics at all levels, K-16. The Center has a three-part mission: to provide assistance to current projects, to coordinate resources resulting from project involvement, and to support visioning in mathematics education. Vicki Oleson is the Center Director. Her role is to seek new ways in which the Center can serve the department and profession, and search for opportunities for the department to collaborate with others committed to mathematics education.

Major projects of the CTLM include SOAR and DoDEA. Keep reading for articles on these and other grant or contract funded projects.

Math Murder Mystery

On November 7, the UNI Math Department hosted its first annual Math Murder Mystery. Nine students formed teams to solve mathematical puzzles leading to clues about the heinous, brutal and fictitious murders of Prof. Jerry Ridenhour and the equally fictitious student Polly Gone. Prof. Adrienne Stanley and Prof. Theron Hitchman were witness to the efforts of our intrepid mathematical detectives, and bad puns were barely enjoyed by all.

Student Competitions

On Saturday, December 1, the UNI Mathematics Department was proud to sponsor a team for the Sixty-Seventh Annual William Lowell **Putnam Mathematical Competition**. This is a prestigious problem solving contest solely for undergraduate mathematicians administered by the Mathematical Association of America. Top individual scorers and top teams win modest cash prizes, and students with excellent scores garner invitations to the best mathematics graduate programs. Contestants have two three-hour blocks to work, each of which is devoted to a group of six problems. The problems posed to students are extremely challenging, as they assume the entire standard undergraduate syllabus in mathematics and are constructed to mix various fields and to require some creativity. The UNI team this year was Justin Bohnet, Katie Crowley and Nic Grayson and was advised by Prof. Doug Mupasiri and Prof. Theron Hitchman.

In March, the UNI Math Department had six students in two teams compete in the 14th Annual **Iowa Collegiate Math Competition** at Drake University in Des Moines. Our congratulations to the students who participated for their good showing: Bill Bucy, Nic Grayson, Brian Hart, Scott Herrig, Matt Karl and Ehrich Pakala. Thanks also to Prof. Rayevskaya and Prof. Hitchman for getting things organized and taking the team to the event.

PSM

Our **Professional Science Master's (PSM)** program in Industrial Mathematics began in 2005 and is off to a promising start. It is an innovative graduate program designed to meet the need for business-savvy professionals who can apply mathematical methods to solve complex industrial problems. Developed in consultation with industry leaders, the curriculum integrates business and experiential components with two degree options, one in continuous quality improvement and the other in mathematical computing and modeling. UNI is one of about 60 institutions offering this degree, and one of thirteen programs offering a program in mathematics and statistics.

Two students have graduated from our program and no less than thirteen students, including five

employees of the John Deere Waterloo Works, will be enrolled in the program this Fall.

The highlight of the PSM activities during the previous academic year was the highly successful conference **Quality & Modeling - 2007** held on October 27, 2007. The conference attracted nearly 130 people representing over 35 well-known companies, including John Deere, Rockwell-Collins, and Pioneer Hi Bred. The PSM program also organized a unique seminar course on Lean and Six Sigma methods for PSM students and industry professionals last fall. The instructors for this 12-module intensive course included industry professionals from John Deere Waterloo Works and Rockwell-Collins, Inc. If you or any of your friends would like to know more about the PSM degree or a related certificate course, please contact Syed Kirmani (kirmani@math.uni.edu), who is the PSM Program Coordinator.

Mathematics After Hours

Math Club meets on a bi-weekly basis to enjoy presentations from faculty members, mathematics movie screenings, and an on-going Blokus tournament. A highlight of the year was the **Pi Day** celebration (held 3.14, at 1:59 pm, of course). Faculty and students enjoyed delicious pies, a sudoku puzzle featuring the digits of pi, and other math related activities. The club president is Nic Grayson and the club is advised by Dr. Vera Rayevskaya.

Faculty Notes

We like to brag about our faculty and their successes. Here are a few:

- Drs. Syed Kirmani and Michael Prophet both had Professional Development Assignments (sabbaticals) during Spring 2008.
- Dr. Michael Prophet was promoted to Professor from Associate Professor this year. Congratulations!
- Dr. Shangzhen Luo was awarded two months of summer support by the university. His project was titled *Stochastic Optimal Control for Insurers*.
- Dr. Catherine Miller received the Regents Award for Faculty Excellence.

- Dr. Thomas Kline garnered the College of Natural Sciences Dean's Award for Teaching Excellence in the Liberal Arts Core.
- Dr. Edward Rathmell is a member of the editorial panel for the NCTM (National Council of Teachers of Mathematics) Essential Understandings series of books for professional development.

Integration Bee

Why should spellers have all the fun of a Bee? The math department integrates! The Integration Bee was the buzz on April 16 and featured UNI undergraduates and calculus students from local high schools and community colleges. The champion was Nicky Singh, who learned his calculus at UNI but is still a student at Cedar Falls High School. His prize was a \$100 gift certificate to University Book and Supply. Runners-up were Matthew Kaspar, a physics major, and Benjamin Kreassig, a statistics/actuarial science major. Each received \$25 gift certificates.

Alliance Program

Dr. Douglas Mupasiri spent his third summer directing the Alliance Summer Internship program at UNI. This program is funded by the National Science Foundation and provides a research experience to minority undergraduates. After a four week course on differential equations and linear algebra, the students have four weeks to work on research projects. This year, seven students from the U.S. Virgin Islands, Puerto Rico, Tampa, and Miami attended. Their projects were *Predator and Prey Modeling* (mentored by Dr. Ridenhour), *A Modified Gompertz Model for Tumor Growth* (also mentored by Dr. Ridenhour) and *Trigonometric Interpolation and the Discrete Fourier Transform* (mentored by Dr. Mupasiri). The students also learn about graduate school and participate in various social, cultural, and educational activities. They finish the summer by presenting their work at the Alliance, AGEP, and VIGRE Summer Symposium held at Iowa State University.

SOAR (Student Online Achievement Resources)

SOAR is a federally funded project (\$1.5 million FY 2007) designed to assist with the unique

challenges children of military families face as they transition from one school district to another. SOAR is a partnership between the University of Northern Iowa (UNI), The Princeton Review, and Military Impacted School Association (MISA). Through this project, UNI is providing on-line resources in the areas of mathematics and literacy for parents and teachers of military impacted children.

UNI's role is to research, develop, and produce educational resources in the areas of mathematics and literacy. These resources will help learners develop deep, conceptual understanding of, and become fluent in these subject areas. With the 2007 appropriation, UNI is developing web-based videos that connect to real-life situations and designed to promote understanding of mathematics and literacy topics. Supplementary resources are also in development to accompany the videos. To view an example, go to:

http://www.edgcorextra.net/soar/web_intro2

DoDEA

We are involved in two **Department of Defense Education Activity** projects:

Professional Development for Teachers of Mathematics

UNI has a fifteen-year history of successful work with Department of Defense teachers. The DoDEA Mathematics Project impacts teachers around the world and more recently, teachers in the Hawaii Public School System. Through the Project, UNI has created and implemented high-quality face-to-face and on-line professional development.

This year, UNI will impact approximately 450 teachers through six on-line courses, three face-to-face courses taught in Hawaii, and three face-to-face workshops taught in Des Moines.

In addition to facilitating professional development, UNI is developing an on-line rational number and proportionality course for middle school teachers, an algebraic thinking course for elementary teachers, and is enhancing existing on-line and face-to-face courses to increase teacher implementation of research-based strategies.

Professional Development for Administrators

UNI developed and facilitated a professional development module for administrators. The professional development module focuses on courses offered through UNI to teachers. The module includes general background related to the philosophy presented by these courses and the content and strategies specific to each course. This contract included development of an observational tool for administrators that they can use while observing teachers who have received professional development through UNI.

Hawaii Department of Education (Professional Development Facilitator Training)

During the summer of 2008, UNI was contracted to plan and conduct a professional development workshop designed to train qualified Hawaii Public School teachers and administrators to co-facilitate on-line mathematics courses offered through UNI, and to introduce these educators to facilitation of face-to-face mathematics courses.

Focus on Two Endowment Funds

Our department has a long history. The teaching of mathematics here dates back to 1876 when the school (then Iowa State Normal School) was founded. The Mathematics department was officially organized in 1909 when the school was renamed Iowa State Teachers College. Since then, thousands of students and about 200 faculty have worked and learned here. One way our history is told is via endowments people have established for the department. Many of these funds have names attached to them and we want to share their stories. This year, we'll give two of them.

The **E.W. Hamilton Scholarship Fund** was established in 1976 and has awarded scholarships since 1977. Dr. E.W. (Alex) Hamilton joined the Mathematics Department in 1949 and served as Head from 1963 to 1976. Dr Hamilton also was a textbook author, President of the Central Association of Science and Mathematics Teachers, and served as co-editor of the *Arithmetic Teacher*, a

journal of the National Council of Teachers of Mathematics. He retired from teaching in 1978. He continued to live in Cedar Falls until his death in 1995. His wife, Edna Hamilton, is still a friend of our department.

The E. W. Hamilton Scholarship typically supports two students each year. To be eligible, a student must be enrolled in any program of the department or be an elementary education major with a K-6 math minor. The student must have completed 45 semester hours of college with a minimum of one semester in residence at UNI. The awards next year (nearly \$1500 each) go to Ehrich Pakala, a junior mathematics major, and Emily Thronson, a senior Elementary Education Major/Mathematics Minor.

The second fund highlighted this year is also our newest: **The Rich and Dee James Secondary Mathematics Teaching Scholarship**, established in 2008. It will award its first scholarship for the 2009-2010 academic year. Rich is a '69 Math Education graduate and Dee is a '69 Early Childhood Education graduate. They live in Bettendorf where Rich is a financial adviser with Wachovia Securities and Dee, who taught kindergarten early in her career, recently retired from Center for Active Seniors Inc., and is an active volunteer. Dee is a native of Milo and Rich grew up in Cedar Falls where his family has a long history with UNI. In fact, the home where Rich's father was born in 1910 was located where the Campanile now stands. That home was moved behind Baker Hall and housed KUNI and the Student Health Center at various periods of time.

This scholarship will be awarded to junior or senior students at UNI working towards the secondary mathematics teaching degree. The recipient will have a grade point average of at least 3.25 and preference will go to residents of Iowa. We appreciate Rich and Dee's willingness to support future teachers, as teachers are fundamental in society, but perhaps aren't paid what they are worth. Teachers "touch the future" by mentoring their students. Rich and Dee have ensured that they will touch the future for many years as well.