

## An Interview with Steve Krone



***You did not start off in mathematics...what did you start off in and when did you first become interested in mathematics?***

I started off studying psychology. I became disappointed with how unscientific things were, so I started reading about physics and philosophy. I got attracted to physics, changed my major to physics and, after a short time in physics, I found out about mathematics and switched to mathematics.

***Did you get a degree in Electrical Engineering?***

Yes, that was after my master's degree in mathematics. I got a master's degree in mathematics and got tired of school and wanted to get a job. While I was waiting to get security clearance from the National Security Agency I started a degree in Electrical Engineering because I thought it would help me get a job. I received a master's degree in Electrical Engineering and actually got a job in the real world for a couple of years, working as an Electrical Engineer doing spread spectrum communications and consulting with the Air Force on anti-jamming radios.

***Did you ever work for the National Security Agency?***

Nope. They offered me a job but by that time I was sucked into Electrical Engineering and enjoying it.

***What got you back into mathematics?***

Working as an Electrical Engineer in a boring job! I started missing school, missing mathematics. I was going to go back to school and do a PhD in Electrical Engineering. There was a famous professor at the University of

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## UI Math Club

In November, the Math Club held a Math Knowledge Bowl. More than 20 students, competing in pairs, tested their ability to recall well known math facts. The winning team consisted of **Layne Lund** and **Josie Imlay**. The prizes were UI t-shirts. Below is a photo of Josie and Layne after their Math Knowledge Bowl win.



Look for the 4th Annual "Pi Day" Integration Bee before Spring break. Come and have a piece of pie and test your ability to find anti-derivatives.



**2004-2005 Math Club Officers**

*Left to right: Nathan Bialke, Vice President; John Rush, Secretary; Jill Gullman, President*

## Student Honors

Congratulations to...

**PETER MARCY** for being the recipient of this year's Alumni Association Dean's Scholarship. Peter was honored at the annual Awards for Excellence Banquet on December 10.

**ZAID ABDO, BRIAN DORGAN, and ERIK MENTZE** for being recognized for their outstanding academic achievements and extra curricular activities by the UI Alumni Association. Each received the Alumni Award for Excellence.

## Changes in the Requirements for Associateship in the Society of Actuaries

### 1. Why has the Society of Actuaries changed the exam structure?

Their objective is to test directly only subjects that are insurance related, and to leave the background subjects to the Universities. Some subjects that were previously tested will no longer have a test. They are among the pre-requisite subjects.

### 2. What requirements can I satisfy as an undergraduate?

In the new structure some subjects will be validated by a university course. They are Principles of Economics, Corporate Finance, and Applied Statistical Methods. The corresponding UI courses are:

- Principles of Economics: Econ 201 and Econ 202
- Corporate Finance: Business 301 and Business 302
- Applied Statistical Methods: Econ 353 and Stat 401

### 3. How will the Society recognize my college work?

You need to submit a transcript to the Society. A grade of at least B is required. The Society will accept your transcript only after you have passed two exams.

### 4. How will this affect UI's Actuarial Science Option?

Econ 353 and Bus 302 will be included in the list of courses for the option. A few courses that are not directly relevant will be deleted. The other courses needed are already part of the requirements. If you graduate under an old catalog you will be able to substitute these two courses for some of the requirements. See Ralph Neuhaus for details.

### 5. Which subjects will not be tested directly? What are the prerequisite subjects?

Calculus is necessary for many subsequent courses but is not a portion of any exam. The pre-requisite subjects are: calculus, linear algebra, introductory accounting, business law, and mathematical statistics.

### 6. What is the new first exam? How can I prepare for it?

The new first exam is Exam P over Probability. You should take Math 451 and 455. The content of this exam is basically the same as the probability portion of the old exam 1 on Calculus and Probability. The questions are phrased in terms of risk and insurance and they are not textbook problems. Math 455 will help you prepare by studying old exams.

### 7. When will this take effect?

The official changes in the UI catalog will take some time but you will be able to use the new requirements by petition. The Society of Actuaries has set the effective date as January 1, 2005. Exam P will be offered on Wednesday, May 25, 2005 at the University of Idaho. Applications can be obtained from Ralph Neuhaus in 302 Brink Hall or at [www.soa.org](http://www.soa.org).

### 8. When and where are the exams given?

The exams are given twice a year, in the Fall and in late May. All exams can be taken at the University of Idaho.

### 9. Are there other ways to receive credit for these subjects?

Yes. The Society of Actuaries is committed to having other options available. These options have yet to be identified. In the interim, the Casualty Actuarial Society will offer exams on these subjects. See the SOA or CAS web-pages for current information.

## Actuarial Science Talk

Mrs. Ling Wu talked to interested students in November about the work of an actuary. She has worked as an Actuarial Analyst for Regence Blue Shield in Seattle and for Boston Mutual Life Insurance Company.

## New Graduate Students



**JODI FROST** received her bachelor's degrees in Mathematics and Science, Technology, and Society from Pitzer College in 1995. She is a M.S. candidate in Mathematics.

**BLERINA ZYKAJ** received her bachelor's degree in Mathematics from Tirana University, in Albania, in 2003. She is a Ph.D. candidate in Mathematics and a Teaching Assistant in Mathematics.



**Welcome to the Department!**

Massachusetts who worked in information theory. I wanted to work in information theory and he agreed to take me on as a student. I was going to go do my PhD with him and then, at the last minute, he decided to leave the university. He wouldn't tell me where he was going right away, since he was in negotiation with the university, so I decided to stick around and do my PhD in mathematics.

***Were your parents or siblings mathematical?***

No, they were Croatian, German, and Irish.

***They had no interest in math at all?***

No, I was the black sheep.

***Where did you go to college?***

The University of Missouri in St. Louis. I'm originally from St. Louis.

***Where did you go to graduate school and why?***

I went to the University of Illinois for my master's degree in mathematics and then a master's degree in Electrical Engineering. I worked for a couple of years and then I did my PhD at the University of Massachusetts.

***How did you decide to specialize in probability?***

I tossed a coin. It was either probability or professional basketball. Actually, I got interested in probability through my work in Electrical Engineering. That was the first time I saw probability applied in lots of interesting ways. I became fascinated with it.

***Can you describe the research that you do?***

Yes. I work in probability and differential equations mostly as it applies to problems in biology, especially genetics and ecology. A lot of the things involve stochastic processes that have some sort of structure to them, spatial structure for example. Such things are useful for modeling.

***You construct a model of what's going on in biology or something and these models are probabilistic?***

Yes, there are usually both probabilistic models and differential equation models. Both give you a certain amount of information about the phenomenon you are studying and there are connections between the probability and the differential equations. Mathematics helps you to understand how the different models relate to each other, and also which biological mechanisms are most important in driving the system.

***For the same model you will use both differential equations and probability?***

Sometimes.

***Has there been a particular teacher or professor who has motivated you or that you have especially enjoyed?***

My advisor, Joe Horowitz, at the University of Massachusetts. He was an excellent mathematician with a broad

knowledge of mathematics. He was the first one to show me that you could be both good in mathematics and be interested in applications and take the applications seriously. He was a wonderful example of rigor and fine teaching and learning about other subjects. He had a great deal of curiosity about other things.

***What made you decide to come to the University of Idaho?***

The promise of untold wealth and wild parties with mathematicians. I'm still waiting for the untold wealth part. Actually, Paul Joyce is one of the main reasons I came here. In looking for a job he kept telling me about UI and the Mathematics Department. He and I work in similar areas. We had known each other from conferences for several years before that.

***What courses do you enjoy teaching?***

I like teaching upper level courses and graduate courses because it allows me to keep learning new things. I especially enjoy teaching probability, differential equations, and analysis. I like courses in which I can introduce examples from science in a serious way.

***What achievements at the University are you most proud of?***

The research that I've done. I'm especially proud of the interdisciplinary group that we've built up over the years here, the Initiative for Bioinformatics and Evolutionary Studies (IBEST) group. This is a group of mathematicians, biologists, and computer scientists that work together all the time. Over a number of years, through working together, we have put together one of the best groups in the country.

***What are your goals for the next few years?***

To keep doing the kinds of research that I'm doing and to keep bringing in grant money so that I can maintain and attract graduate students. One of my biggest joys here has been working with really good graduate students.

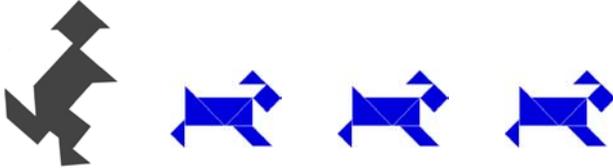
***What are your interests outside of Mathematics?***

Lots of things. I'm a rabid Green Bay Packers fan. I love to read, classical literature, poetry, history, current events. I like doing things outdoors, like hiking and fishing. I recently started learning how to fly fish.

## NUMB3RS

NUMB3RS is a new CBS drama where an FBI agent, Don Eppes, recruits his mathematical genius brother, Charlie, to help the Bureau solve a wide range of challenging crimes in Los Angeles. Numb3rs depicts how the confluence of police work and mathematics provides unexpected revelations and answers to the most perplexing criminal questions. It premieres on Sunday, January 23rd at 10:00 pm ET/PT on CBS.

Several scholarships are available to mathematics majors. The Taylor, Botsford, Wang and Hower scholarships are awarded to mathematics majors entering their junior or senior year. Total awards for these scholarships are \$500, \$1500, and \$2500. The Mathematics Department Scholarship has no class restrictions. All mathematics majors are automatically considered for a scholarship. Non-mathematics majors are eligible if they change their major to Mathematics or add mathematics as a second major. The selection is made by the faculty of the department in March.



### Eugene and Osa Taylor Mathematics Scholarship

This scholarship was established in 1979 by the family and friends of the first head of the department, Eugene Taylor and his wife Osa. He directed the department from the time he came to the department in 1920 until he retired in 1950. In 1981, his family donated many of his personal mathematics books to the University of Idaho library. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year. The recipients of the Taylor Scholarship this year were:

*Melissa Curd  
Brian Dorgan  
Toney Jacobson  
Peter Marcy  
Dmitriy Myedvyedyev  
Joseph Nutting  
Wor Thongthai  
Brianna Tweedy*

*Emily Denn  
Eric Edwards  
Tyrel Johnson  
Erik Mentze  
David Nadler  
Fauna Samuel  
Kathryn Tomaszewski*

### New Scholarships

UI has received a grant from the National Science Foundation to award scholarships to students majoring in Mathematics or Computer Science. Each Scholar will receive \$3000 per academic year, for up to 3 years. The Scholars are selected on the basis of high academic achievement and financial need. NSF seeks to increase the number of specialists in the mathematical and computational sciences. The program at UI is directed by James Foster in Computer Science, Paul Joyce in Mathematics, and Dan Davenport, the Director of Financial Aid. Math majors chosen this year are:

*Joshua Burns, Katie Daves, Emily Denn, Brian Dorgan, Angela Driscoll, Michael Fernald, Kevin Henry, Frederick Hole, Tyrel Johnson, Michelle Kalman, Fabian Librado, Stacey Patchett, Fauna Samuel, Michael Shaw, Wor Thongthai, Brianna Tweedy, Bradley Walker, Angela Windley.*

### Mathematics Department Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded primarily to freshman and sophomore mathematics majors. It is based on merit.

*Jonathan Gaffney, Abigail Sobczyk, Bradley Walker, and Jesse Walson are this year's recipients.*

### J. Lawrence Botsford Scholarship

This scholarship was established by the family of J. Lawrence Botsford who was a member of the department from 1949 until his retirement in 1970. He also served as head of the department from 1950 to 1954. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year.

*Wor Thongthai is this year's recipient.*

### Ya Yen Wang Memorial Scholarship

A long-time member of the Mathematics faculty, Ya Yen Wang died in January of 1995. Acting on her wishes, her family established the Ya Yen Wang Memorial Scholarship. This scholarship is intended for a junior or senior in Mathematics, preferably to be awarded to a woman. It is based on merit.

*Fauna Samuel is this year's recipient.*

### Linn Hower Honor Scholarship

This scholarship was established in 1991 by Mildred and Loyal L. Hower, parents of Linn Hower, who graduated from the University of Idaho in 1979 with a B.S. in Mathematics. This scholarship is awarded to junior and senior applied mathematics majors, preferably from rural Idaho, with a high potential for success in a mathematics or scientific field. It is based on merit.

*Tyrel Johnson is this year's recipient.*

### Leo F. Boron Memorial Fellowship

Established in 1987 by the colleagues and friends of Leo F. Boron. This fellowship is based on merit and need. It is awarded to international students in their first year in the United States.

*Sergiy Krasnozhan is this year's recipient.*

### Elna Grahn Polya Scholar Award

This scholarship is given to a student who has demonstrated excellence in and commitment to the application of technology in the teaching of Mathematics. It is based on merit.

*Angela Windley is this year's recipient.*

## Past Graduates

**DANIEL BRODOCK** is working in the Actuarial Department at Mellon in New Jersey. He is concentrating on retirement practices. He graduated from UI in 2002.

**STEVE ELGAR** was a candidate for the Idaho State House of Representatives from District 1 (Bonner and Boundary Counties). He graduated from UI in 1980 with a B.S. in Mathematics and a B.S. in Civil Engineering. He earned a PhD in Oceanography from the Scripps Institute of Oceanography and runs a business focusing on water research.

**EILEEN HARTMANN** is a Certified Public Accountant in Monmouth, Oregon. She graduated from UI in 1972 with a B.S. in Mathematics.

**CHRIS HIATT** is in his fourth year of graduate studies in Mathematics at the University of Southern California. He has completed his M.A. degree and is working on his Ph.D. thesis in hyperbolic geometry. He earned his B.S. in Mathematics from UI in 2001.

**NATHANIEL HINDS** graduated in December 2004 with a Bachelor of Science degree in Philosophy. He graduated from UI in May with a B.S. in Mathematics.

**JESSE HUSO** is a graduate student in Physics at UI. He graduated from UI in May with a B.S. in Mathematics and Physics.

**CHRIS JOHNSON** earned his M.S. in Electrical Engineering from UI in December. He received a B.S. in Mathematics from UI in 2002.

**CLARENCE KIMM** is working for Oregon National Insurance Company in the actuarial department. He graduated from UI in 1995 with a B.S. in Mathematics and in 1994 with a B.S. in Economics.

**TIMOTHY PAULITZ** earned his M.S. in Mechanical Engineering from UI in December. He received a B.S. in Mathematics from UI in 2003.

## National Math Meetings



*Left to Right:  
Tom McMillan  
Josh Rushton  
Bryan Smith*

UI graduates at the national meeting of the American Mathematical Society and Mathematical Association of American in January. **TOM MCMILLAN** is Chair of the Mathematics Department at the University of Arkansas at Little Rock. He graduated from UI with a B.S. in Mathematics in 1971. **JOSH RUSHTON** is a graduate student in Mathematics at the University of Wisconsin. He graduated from UI with a B.S. in Mathematics in 1998. **BRYAN SMITH** is Chair of the Mathematics Department at the University of Puget Sound. He graduated from UI in 1977 and 1983 with an M.S. and Ph.D. in Mathematics.

## Teachers We Have Taught

Over the years we have taught many students that have gone on to teach in colleges in Idaho and across the country. Below are some of our graduates, along with where they have since taught. Please let us know of anyone we have missed.

- **KATHLEEN AYERS** received M.S. and Ph.D. degrees from UI in 1978 and 1983, respectively, and is teaching at Boise State University.
- **MOHAMMED AZRAM** received M.S. and Ph.D. degrees from UI in 1985 and 1989, respectively, and is teaching at International Islamic University, Malaysia.
- **ALLEN BAILEY** received M.S. and Ph.D. degrees from UI in 1995 and 1999, respectively, and is teaching at University of Maine at Farmington.
- **RICH BARNHART** received M.S. and Ph.D. degrees from UI in 1968 and 1972, respectively, and is teaching at Grace College in Winona Lake, Indiana.
- **PETE BLOOMSBURG** received B.S., M.S., and Ph.D. degrees from UI in 1988, 1990, and 1996, respectively, and is teaching at Bellevue Community College in Bellevue, Washington.
- **GREG BORMAN** received a M.S. degree from UI in 1998 and is teaching at College of Eastern Utah.
- **MARETTA BRENNAN** received a M.A.T. degree from UI in 1995 and is teaching at Cork Institute of Technology in Cork, Ireland.
- **MICHAEL BRENNAN** received a Ph.D. degree from UI in 1995 and is teaching at Cork Institute of Technology in Cork, Ireland.
- **WILLIAM CRAINE** received M.S. and Ph.D. degrees from UI in 1989 and 1994, respectively, and is teaching at University of Portland in Oregon.
- **ROBIN CRUZ** received B.S. and M.S. degrees from UI in 1979 and 1981, respectively, and is teaching at Albertson College of Idaho.
- **SCOTT DAUGHERTY** received a M.S. degree from UI in 1997 and is teaching at Tusculum College in Greenville, Tennessee.
- **YOUNG (DO) LEE** received M.S. and Ph.D. degrees from UI in 1986 and 1989, respectively, and is teaching at Manchester College in North Manchester, Indiana.
- **PHIL ENGSTROM** received M.S. and Ph.D. degrees from UI in 1958 and 1974, respectively, and is teaching at the University of Regina in Regina, Saskatchewan, Canada.
- **DAVID FERGUSON** received B.S. and Ph.D. degrees from UI in 1964 and 1971, respectively, and is a retired faculty member at Boise State University.
- **WILLIAM FLETCHER** received a Ph.D. degree from UI in 1966 and is a retired faculty member from North Carolina Central University in Durham, North Carolina.

*Teachers We Have Taught continues on Page 6*

- **ALAN HAIN** received a M.A.T. degree from UI in 1999 and is teaching at Lewis Clark State College.
- **PAUL HOWARD** received a M.S. degree from UI in 2002 and is teaching at Cascade College in Portland, Oregon.
- **BURMA HUTCHINSON** received a M.S. degree from UI in 1987 and is teaching at Lewis Clark State College.
- **KATHRINE JOHNSON** received a Ph.D. degree from UI in 1998 and is an adjunct faculty member at Boise State University.
- **GWEN KELLY** received a M.S. degree from UI in 1973 and is a retired faculty member in the College of Education at UI.
- **RYAN LANDVOY** received a M.S. degree from UI in 1992 and is teaching at Heritage University in Toppenish, Washington.
- **MARK LOTSPEICH** received M.S. and Ph.D. degrees from UI in 1984 and 1990 and is teaching at Albertson College of Idaho.
- **BOB MATHEWS** received B.S., M.S., and Ph.D. degrees from UI in 1968, 1971, and 1976, respectively, and is teaching at University of Puget Sound in Tacoma, Washington.
- **TERRY MEERDINK** received M.S. and Ph.D. degrees from UI in 1991 and 1997, respectively, and has is the Mathematics Coordinator at Highline Community College in Des Moines, Washington.
- **PAUL MEIER** received a M.S. degree from UI in 1979 and is teaching at Columbia Basin College in Pasco, Washington.
- **STEVE MILLS** received M.S. and Ph.D. degrees from UI in 1991 and 1999, respectively, and is teaching at Western State College in Gunnison, Colorado.
- **JASON MINER** received a M.S. degree from UI in 1996 and is teaching at Santa Barbara City College in Santa Barbara, California.
- **CHARLES NEWBERG** received a M.S. degree from UI in 1990 and is the Chair of Science and Mathematics at Western Wyoming Community College in Rock Springs, Wyoming.
- **SUSAN POSTON** received a M.A.T. degree from UI in 1989 and is teaching at Walla Walla Community College in Clarkston, Washington.
- **CLANCY POTRATZ** received a M.S. degree from UI in 1960 and is a retired faculty member at UI.
- **JONATHAN PREWETT** received a M.S. degree from UI in 1998 and is teaching at University of Wyoming in Laramie, Wyoming.
- **DUSTY SABO** received M.S. and Ph.D. degrees from UI in 1991 and 1996, respectively, and is teaching at Southern Oregon University in Ashland, Oregon.
- **SCOTT SATAKE** received a M.S. degree from UI in 1996 and is teaching at Spokane Community College.
- **DAN SCHAAL** received a Ph.D. degree from UI in 1994 and is teaching at South Dakota State University in Brookings, South Dakota.
- **BRYAN SMITH** received M.S. and Ph.D. degrees from UI in 1977 and 1983, respectively, and is teaching at University of Puget Sound in Tacoma, Washington.
- **PAUL SMITH** received a M.S. degree from UI in 1976 and is teaching at South Puget Sound Community College in Olympia, Washington.
- **JOHN SPENCE** received a M.S. degree from UI in 2001 and is teaching at Weber State University in Ogden, Utah.
- **CRAIG STEENBERG** received M.S. and Ph.D. degrees from UI in 1987 and 1989, respectively, and is teaching at Lewis Clark State College.
- **SAM STOCKETT** received B.S., M.S., and Ph.D. degrees from UI in 1991, 1993, and 1997, respectively, and is teaching at Luna Community College in Las Vegas, New Mexico.
- **YOZO TAKEDA** received a Ph.D. degree from UI in 1970 and is a retired faculty member at Boise State University.
- **JUDI TERRIO** received a M.S. degree from UI in 1998 and is teaching in the UI Mathematics Department.
- **JOHN THURBER** received a M.S. degree from UI in 1989 and is teaching at Eastern Oregon University in La Grande, Oregon.
- **KIRK TRIGSTED** received a M.S. degree from UI in 1996 and currently teaches in the UI Mathematics Department.
- **STEWART TUNG** received B.A. and M.S. degrees from UI in 1988 and 1990, respectively, and is teaching at Dallas Baptist University in Dallas, Texas.
- **KAREN VANHOUTEN** received B.S. and M.S. degrees from UI in 1967 and 1970, respectively, and is a retired University of Idaho Computer Science professor.
- **KIM VINCENT** received a M.S. degree from UI in 1990 and is teaching at Washington State University.
- **TRAVIS WARWICK** received a M.S. degree from UI in 1997 and is the Librarian at the University of Wisconsin Mathematics Department.
- **LARRY WEILL** received a Ph.D. degree from UI in 1972 and is a retired faculty member at California State University, Fullerton.
- **KAZIMIERZ WIESAK** received a Ph.D. degree from UI in 1989 and is teaching at Pennsylvania State University in University Park, Pennsylvania.
- **ED ZIMMERMAN** received a M.S. degree from UI in 1970 and is teaching at Tacoma Community College in Tacoma, Washington.
- **HENRY ZWICK** received a M.S. degree from UI in 1978 and is teaching at Eastern Oregon University in La Grande, Oregon.



## Faculty and Staff News



**PAUL JOYCE** was invited to present a short course in Coalescent Theory at Uppsala University in Sweden in September.

**FRANK GAO** gave a talk at the Shanghai International Workshop in Probability in September. In October he attended the International Biofilms Conference annual meeting in Las Vegas.



**BROOKS ROBERTS** gave a talk at the Conference on Automorphic Forms and the Trace Formula at the Fields Institute in Toronto, Canada in October.

**CYNTHIA PIEZ** and **GAIL ADELE** attended the Idaho Math Academy for middle school teachers in Pocatello in August. They also conducted a workshop on Geometry and the Imagination.

**DAVE THOMAS** presented a paper at the annual meeting of the Idaho Council of Teachers of Mathematics in October in Boise.



**MONTE BOISEN, KIRK TRIGGSTED, and THERESA ALLEN** gave a presentation about the Polya Mathematics Learning Center at the annual meeting of the International Conference on Technology in Collegiate Mathematics in October in New Orleans.



**CYNTHIA PIEZ** was a workshop leader at the Physics for Elementary Teachers workshop held at Rathdrum in June.



**RALPH NEUHAUS and TONY SHASKA** attended the annual meeting of the American Mathematical Society in Atlanta in January.



**GAIL ADELE** presented a workshop at the 28th annual meeting of the Washington Association for the Education of Young Children in Spokane, Washington in October.

## May Graduation

A reception will be held for mathematics graduates and their guests preceding the College of Science commencement ceremony on Saturday, May 14, 2005. Last year, parents and guests of graduates enjoyed visiting with the faculty and other graduates. During this semester we will request the addresses of your guests so that we may send them an invitation. We hope to see all graduates and their guests at the reception.



## Recent Graduates

**JUSTIN BOGGS** graduated in December 2004 with a Bachelor of Science degree in Applied Mathematics. He also earned a B.S. in Computer Science.

**JASON BOLINE** graduated in December 2004 with a Bachelor of Science degree in Mathematics. He also earned a B.S. in Computer Engineering.

**ELIZABETH CUNNINGHAM** graduated in December 2004 with a Master of Science degree in Mathematics. She will be a lecturer in Mathematics at UI this spring.

**KEVIN HENRY** graduated in December 2004 with a Bachelor of Science degree in Applied Mathematics. He also earned a B.S. in Computer Science.

**MELISSA HODGE** graduated in December 2004 with a Master of Arts in Teaching Mathematics degree.

**TONEY JACOBSON** graduated in December 2004 with a Bachelor of Science degree in Mathematics. He also earned a B.S. in Electrical Engineering.

**DAVID NADLER** graduated Summa Cum Laude in December 2004 with a Bachelor of Science degree in Applied Mathematics. He will continue at UI to complete his B.S. degree in Computer Science.

**MICHAEL NETZER** graduated in December 2004 with a Bachelor of Science degree in Applied Mathematics.

**CYNTHIA REMPEL** is seeking a Master's of Education in Curriculum and Instruction from UI. She graduated from UI in 2004 with a Bachelor of Science degree in Mathematics.

**KOFFI SAMPSON** graduated in December 2004 with a Doctor of Philosophy degree in Mathematics. Koffi's thesis title was "Structured coalescent with nonconservative migration" and his major professor was Steve Krone. He begins a post-doctoral fellowship at Florida State University in January.

**ERIC SAUERAKER** graduated in December 2004 with a Bachelor of Science degree in Applied Mathematics.

**STEPHEN TRATZ** graduated Magna Cum Laude in August 2004 with a Bachelor of Science degree in Applied Mathematics.

**ANGELA WINDLEY** graduated Magna Cum Laude in December 2004 with a Bachelor of Science degree in Mathematics.

**DANHONG ZHANG** graduated in May with a Doctor of Philosophy degree in Mathematics. She was a lecturer in Mathematics at UI for Fall semester. She is now on the faculty at Utica College in Utica, New York.




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## Prize Problems

Solve one of the five Prize Problems and you win a book!!! You can choose a book about mathematics, the history of mathematics, a collection of famous theorems, a collection of problems, specials topics, and so forth. Some problems may appear hard or impossible. But all have a brief solution if you approach them in the right way. Prizes will be awarded while supplies last. Show or send your written solution to Ralph Neuhaus.

**Rules for participating:**

1. You must be an undergraduate, an alumnus, or an alumna.
2. You must solve one of the problems, giving a full explanation.
3. One prize per person.

**Question 1:**

A basketball player shoots free throws throughout the season. At one point in the season, her average is under 80%. At a later point, her average is greater than 80%. Is there a point in the season in which her average is precisely 80%?

**Question 2:**

Calculate and show your work:

$$\lim_{x \rightarrow \infty} x \int_0^x e^{t^2 - x^2} dt$$

**Question 3:**

Show that if one of the coordinates of the center of a circle is an irrational number, then the circle contains at most two points, both of whose coordinates are rational numbers.

**Question 4:**

Let  $p$ ,  $q$ , and  $r$  be positive integers no two of which have a common factor larger than 1. If  $P$ ,  $Q$ , and  $R$  are positive integers such that

$$\frac{P}{p} + \frac{Q}{q} + \frac{R}{r}$$

is an integer then show that each of  $\frac{P}{p}$ ,  $\frac{Q}{q}$  and  $\frac{R}{r}$

is an integer.

**Question 5:**

If  $\sum_{n=1}^{\infty} a_n$  converges where  $a_n > 0$  and  $a_n \neq 1$  for all  $n$ ,

determine if  $\sum_{n=1}^{\infty} \frac{a_n}{1-a_n}$  converges.