

Greetings from the Chair



Dr. Jie Chen, Chair

Welcome to this inaugural edition of the Newsletter of the Department of Mathematics and Statistics at the University of Missouri-Kansas City!

In recent years, the department has gone through dramatic changes in its academic programs, faculty, and student body. Several pro-

fessors took retirement in the year 2003 and six new faculty members joined the department during 2003 to 2006. Last academic year (2010-2011), two new Assistant Professors, Ian Besse and Thomas Fisher, joined the department, and this fall we welcomed three new Non-Tenure Track Faculty, Naeem Ahmad, Swati DebRoy, and Stephanie Van Rhein. Our current faculty size of 14 is small, but the department is dynamic due to dedicated faculty members and a vibrant student body. For a complete list of our current faculty and their profiles, please visit the department's website at: <http://cas.umkc.edu/Mathematics/MathFaculty.asp>

The department currently

offers the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) degrees in Mathematics, the Master of Arts (M.A.) and Master of Science (M.S.) degrees in Mathematics and Statistics (with concentration in either Mathematics or Statistics), and an Interdisciplinary Ph.D. degree (IPh.D. through the UMKC School of Graduate Studies) in Mathematics (research direction in either Mathematics or Statistics). In the fall semester of 2010, 10 math majors graduated with a B.A./B.S. in Mathematics, and 10 Master's students graduated with an M.A./M.S. degree. Our majors enrollment has surged to 61, masters' enrollment to 33, and iPh.D enrollment to 39 (13 in Mathematics and 26 in other disciplines (*Cont'd on page 2*))

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www.umkcalumni.com

Promotions & Tenure

This year two of our department members received promotions. Dr. Liana Segal has been promoted to Associate Professor with tenure, and Dr. Noah Rhee has been promoted to Full Professor. These awards follow on the

heels of others in recent years: Dr. Jie Chen was promoted to Full Professor in 2008, and Dr. Eric Hall and Dr. Hristo Voulvov were promoted to Associate Professor with tenure in 2009. The department is fortunate to have faculty of such high caliber.



Dr. Liana Segal



Dr. Noah Rhee

Chair's Greetings (Continued from page 1)

with Mathematics as co-discipline) in fall semester 2010, despite the fact that our faculty size is small.

The department's faculty members are active researchers in fields including algebra, real analysis, logic, dynamical systems, mathematical biology, statistics, biostatistics, bioinformatics, genetic data modeling, spatio-temporal data modeling, numerical analysis and mathematical finance. They actively collaborate with UMKC's School of Computing and Engineering, School of Biological Sciences, School of Medicine, School of

Education, the Stowers Institute for Medical Research, and other research institutions in the local community.

I invite you to frequently navigate through our very informative department website at : <http://cas.umkc.edu/Mathematics> to learn about the developments in our department. We also are eager to hear your stories as our departmental alumni. So please keep contacting us and spreading the word of our dynamic programs to your friends and families! Thank you!

Department Seminars

Dr. Kamel Rekab was the organizer last Fall for the Department's Seminar Series, and Dr. Yong Zeng has taken over for Dr. Rekab as organizer this Spring. Seminars are held Friday afternoons from 3:00-4:00 pm in Room 307 Haag Hall. Thus far, Dr. Michael Robbins of the National Institute of Statistical Sciences, Dr. Xuemin Tu from the KU Dept. of Mathematics, and our own Swati DebRoy and Naeem Ahmad have given talks. You're invited to these department talks every semester. For dates and locations please contact Dr. Zeng at zengy@umkc.edu.

Department Welcomes New Faculty Lecturers

Fall 2011 saw the addition of three new Non-Tenure Track faculty members, Swati DebRoy, Naeem Ahmad, and Stephanie Van Rhein. Swati DebRoy received her Ph.D. in Mathematics in December 2011 from the University of Florida, Gainesville. Swati's interest is in Mathematical Biology, she already has two publications (on Hepatitis C, and HIV/AIDS), and has given conference talks in India, France, and the SIAM (Society for Industrial and Applied Mathematics) annual conference in 2010 in Pittsburgh, PA. She remembers that her first experience teaching was right after high school, when she was asked to step in at her former Carmel High School in Kolkata, India, to teach Statistics to seniors while a teacher recovered from a broken leg. She loved the experience and has enjoyed teaching since then.

Naeem Ahmad received his Ph.D. in Mathematics in 2011 from Kansas State University. In 2006, he was awarded the Outstanding Graduate Teaching Assistant (GTA) Academics Award by Kansas State University (KSU). He has two publi-



Swati DebRoy

cations already, and gave a talk at the 2011 MAA-AMS Joint Meetings in New Orleans, LA. From 2007-2011, he was hired as an Organizational GTA at KSU due to his consistently high teaching evaluations. He says "I look forward to continuing to work with students as an inspiring teacher and facing new challenges I may encounter as a faculty member."

Stephanie Van Rhein earned her M.S. in Applied Mathematics at Missouri University of Science & Technology (MS&T).



Naeem Ahmad



Stephanie Van Rhein

She was awarded both a Chancellor's Fellowship from MS&T, as well as a Mathematics Department Scholarship, and two other awards. She has worked on new student programs for orientation and retention. Stephanie says "I believe that an effective instructor develops an atmosphere that values education, creates a positive energy for the material, and inspires the students to want to learn... Teaching and learning is a coupled system."

Where Are They Now? News of Our Alums



Mike Keefe, a UMKC Math Dept alumnus and Denver Post cartoonist, has recently won the prestigious 2011 Pulitzer Prize for editorial cartooning. Judges cited his work for its wide range

and the way he used a “loose, expressive style to send strong, witty messages.” The department faculty is extremely proud to have one of our graduates achieve such a high international honor.

Keefe studied mathematics at UMKC in the early 1970’s, and was awarded his MS degree in mathematics in 1974. But, as Nathan Zoschke wrote in an article on Keefe in the U news, Keefe had become interested in politics during a tour in the military during the Vietnam War, and also wanted an outlet for his political interests and convictions while a student here.

“I wanted to say something, but I didn’t know how,” he told Zoschke. “I knew I could draw, and there was no cartoonist at the U-News, so I decided maybe it was something I might be able to do.”

“[UMKC] was the first time I realized there might be another direction I could take in life,” he said. “I began doing [editorial cartoons] kind of on a whim

joining the U-News. After a couple years there, I realized I might be able to make a living out of this.”

His artistic talent also manifested itself in his mathematics classes. Professor Emeritus Thomas Kezlan of the mathematics department recalls that Keefe once showed his creative cartoon picture based on an abstract concept, the abelian group, which he just learned from Professor’s Kezlan’s graduate level Abstract Algebra class.

In 1975, Keefe began his career at the Denver Post. Praise from his colleagues there poured in when his award was announced. William Dean Singleton, chairman and publisher of The Denver Post, said of Keefe in a Denver Post article,

“Mike’s been here almost 36 years, and he’s put out award-winning work

almost since the day he got here. Editorial page editor Dan Haley cited Keefe’s ability to distill some of the most complex issues of our times to one panel and a few words. “Mike gets four words and tells that story better than most of us do in 400,” Haley said.



it’s easy to prove that there’s a fifty-fifty chance one of those fellows was gay.”

Math & Statistics Dept Chairman Jie Chen, commenting on Keefe’s successful career, said that Keefe’s story can serve as a lesson for

And sometimes he still uses his math degree to make his point. As Zoschke wrote in his September 17, 2011 U-News article:

A November 2010 cartoon, one of 20 in Keefe’s Pulitzer Prize-winning portfolio, targeting Don’t Ask, Don’t Tell, a ban on openly-gay military service that has since been repealed, did just that.

The cartoon depicts two visitors at the Iwo Jima memorial with a caption reading, “Statistically speaking, there’s an even chance one of those heroes was gay.”

Keefe’s statistical proof was submitted to the Pulitzer committee as part of his portfolio.

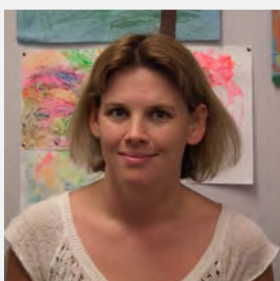
“A liberal estimate is that 10 percent of the population is gay,” he said. “Mathematically,

our current and prospective math majors that mathematics can work with many professions in some unexpectedly influential ways.

[Thanks to the Nathan Zoschke and the U News for their contributions to this article.](#)

Melanie Knoshaug (formerly Meyer)

contacted us and gave us the following update:



“I graduated from UMKC in the spring of 2006 with a B.S. in Mathematics and Statistics. I immediately began looking for a company with whom I could begin my career. I assumed that once I had a degree that finding a job would be fairly simple, since math is used in virtually every field. However, I soon discovered that most companies were looking for someone with experience and expertise. Within a few months I accept-

ed a job offer working as an Administrative Assistant at the University of Kansas Medical Center (KUMED). Not exactly the job I was seeking, but it paid the bills. While working at KUMED, I continued looking for career opportunities that would utilize my knowledge and skills that I gained through my course work at UMKC. In November of 2007 (just a year and half after graduating) I accepted a position at MRIGlobal as an Assistant Analyst. They were willing to train me in the

Department Pilots Major College Algebra Redesign

Students taking College Algebra this spring semester had the option of enrolling in an entirely different sort of course from the three 50-minute lectures per week that have traditionally been offered. Spurred by a statewide initiative to improve student performance and retention as well as cut instructional costs, the department, under the leadership of Dr. Ian Besse, has worked with the National Center for Academic Transformation (NCAT) to redesign College Algebra according to what NCAT calls the “emporium model.” Two pilot sections of the redesigned course are being offered this spring, with full implementation planned for Fall, 2012.

In this model, two of the traditional lecture sessions have been replaced by mandatory 75-minute lab sessions in an Interactive Learning Center, and the third has been retained as a class meeting in a traditional lecture hall. During lab sessions, students work within an online, interactive learning and assessment environment, reading the text, watching videos and animations, doing exercises, and working together on group projects, all under the guidance of GTAs or adjunct instructors and undergraduate teaching assistants (UTAs). The class meetings are a time for review of key concepts and preview of upcoming material and tasks.

The department sees several advantages to this course change. The replacement of lectures with the use of online, interactive learning and assess-

ment activities means that students receive ongoing assessment opportunities and prompt feedback about their progress. GTAs and adjunct instructors, with far less time dedicated to grading and lecture preparation, have more time to provide individualized assistance to their students during lab sessions and office hours. In addition, it is hoped that when the redesigned course is fully implemented in the Fall, a unified system of online coursework will replace the separate homework, quizzes and tests that often vary widely from section to section in the traditional course. This change will provide new consistency across sections and curtail course drift.



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since the installation of the library’s robot book retrieval system. The lab currently consists of 9 six-person computer stations with plans for 17 stations (a total of 102 seats) at full implementation, an instructor station that can deliver content through a variety of media, movable whiteboards, and breakout rooms for small-group discussion/instruction. The design supports collaboration among students and facilitates individualized assistance by instructors and tutors.

Dr. Besse is especially excited about this space, and sees the environment it will provide as an important dimension to the success of the project. Even though the course content will be delivered online,

the redesigned course will not be an online, distance-learning course. In fact, his vision for this redesign is of a more closely-knit community of learners and educators than can be achieved in the traditional setting, and that the Learning Center will provide an environment for this kind of community. It will be more than just a classroom. It will provide a daily space for MATH 110 students to engage with content and with each other. Eventually students from other redesigned and computationally-intensive math courses will populate the space as well, and additional instructors will hold office hours there. What is envisioned is a dynamic space, humming with activity throughout the day.

Where Are They Now? (Continued from page 3)

skills necessary to *(Continued on p. 4)* perform my new duties, and I quickly became a SAS programmer. My main responsibility is to write SAS programs to manipulate and analyze databases for a variety of research projects. These databases are then used to answer important research questions that impact ordinary people’s lives every day. It is rewarding to know that my work plays such a vital role in our world. Since joining MRIGlobal, I have received a promotion, and I am now an Associate Analyst. Many of my

colleagues come to me seeking solutions when they are having difficulties with their own SAS programs. My skills were recently recognized by MRIGlobal, when I was presented with the Perry L. Bidstrup award. This award is given annually to an MRIGlobal employee in recognition of their outstanding professional contribution to the institute’s programs. I have come a long way in life since I first started working on my degree, as a single mother just struggling

to get by. I now have a career, a house, a husband and two wonderful children. Without the support I received from Richard Delaware, I’m not sure that I would be where I am today. I know that my degree will continue to enable me to accomplish many more of my career and personal goals in life.”

We thank Melanie for reconnecting with the department and for sharing her achievements and memories with us. At the end of 2011, Melanie moved to Quintiles as a statistical programmer.

Our Undergraduates in the News



Undergraduate mathematics student Paul Stahl was the winner in 2011 of the eighth annual HOMSIG-MAA (History of Mathematics Special Interest

Group of the Mathematical Association of America) contest for papers written in History of Mathematics courses across the country! Congratulations, Paul! His paper is posted on both the HOMSIG-MAA web site, and the Convergence web site. Take a look! In addition, undergraduate mathematics major Rick Hill was one of two runners-up. Paul's winning paper is titled "Kepler's Devel-

opment of Mathematical Astronomy." Rick's runner-up paper is titled "Thomas Harriot's *Artis Analyticae Praxis* and the Roots of Modern Algebra."

Both Paul's and Rick's papers were written this Spring 2011 for Math 464 WI (History of Mathematics, Writing Intensive) taught by Richard Delaware.

Our GTAs Win Teaching Awards

Last spring, Cam Buie graduated with an M.S. degree in Mathematics from our department, but not before being awarded the 2010-2011 Graduate Teaching Assistant Superior Teaching Award at the Graduate Studies 21st Annual Awards Celebration. Three of our other recent graduates have also won this award: Julie McKeague in April 2010, Samantha Reynolds in April 2008, and Breanne Volkerding in May, 2006.



Cam Buie (Center) with current GTAs Richard Harris (left) and Todd Whitaker



Samantha Reynolds (left) and GTA officemate Carol Hanson June 2007

New Faculty Spend Busy Year



Dr. Tom Fisher



Dr. Ian Besse

Our newest tenure-track faculty members, Dr. Ian Besse and Dr. Tom Fisher, joined the Department in Fall, 2010. In their first year at UMKC, they were heavily involved in the work of the department. Dr. Fisher has led the effort to establish the Student Learning Outcome Assessment plan for our academic programs, has been active in the de-

partment's recruitment effort, and was awarded an UMRB grant in May 2011. Dr. Besse also worked on our assessment plan, implemented a new Calculus for the Biological Sciences course sequence, and is the lead member of the College Algebra Course Redesign effort. (See p. 4 for related story.)

Dr. Fisher does research in the properties and inference of covariance matrices in high dimensions. He is currently investigating hypothesis testing for an identity covariance matrix and testing for stationary in time-series analysis.

Prior to arriving at UMKC, he taught at Clemson University, particularly Calculus and Statistics. From 2008 to 2009

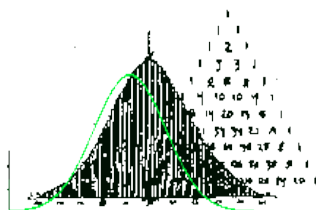
he was the acting Software Administrator for the Center for Advanced engineering Fibers and Films (CAEFF). When not working, he enjoys walking, hiking, camping and playing softball and ice hockey.

Dr. Besse's research interests lie in mathematical biology, differential equations, dynamical systems and optimization. As an undergraduate, he spent a semester abroad in Adelaide, Australia. In 2001 he was a volunteer teacher at St. Rodrigue High School in Lesotho, Africa, teaching English and Physics to Basotho youth in a remote mountainous village. Later, he taught mathematics in a culturally diverse urban school and substituted in an inner-city alternative school. He earned his PhD from the University of Iowa.

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If you would like to donate to UMKC, please visit the **UMKC Foundation** web pages at <http://www.umkc.edu/umkc-foundation/>, where you will find links to Gift Planning, the Alumni Fund, creating a scholarship, and so on. Our department is one of the few with no department scholarships for our undergraduate majors, and you might be the first to initiate one.

Send Us Your News!

We're always happy to hear from you. Send a paragraph or two and let us know what you have been up to. Pictures are welcome.

Please include your name, mailing address, and email address so we can contact you.

Send to: Richard Delaware at delawarer@umkc.edu or RooMath News, Dept. of Mathematics & Statistics, HH206, University of Missouri-Kansas City, 5100 Rockhill Rd, Kansas City, MO 64110

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 Interdisciplinary PhD Coordinator: Dr. Noah Rhee
 College Algebra Coordinator: Rebecca Roberts
 Calculus Coordinator: Dr. Liana Segal
 Mathematics for Teachers Coordinator: Richard Delaware
 Administrative Assistant: Tanya Henderson
 Work Study: Madison Johnson

Math Puzzler



What 5-digit number has the following feature: If we put the numeral 1 at the beginning, we get a number three times smaller than

if we put the numeral 1 at the end of the number.

$$\text{e.g. } (_____1) = (1_____) * 3$$

Send your solutions to :

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