RooMath News

News about our department

18 January 2006: Our Department Graduate Committee makes extensive (and *exciting*) revisions to our **Master of Science (MS) degree** program, with concentration in either Mathematics or in Statistics, *effective Fall 2006*. Our graduate program continues to evolve to meet the needs of our students and the community!

1 February 2006: Go to our Summer 2006 Schedule of Mathematics and Statistics classes to see our offerings this summer. Pass the word! In addition to the usual sections of **Math 110 - College Algebra**, the **Calculus I, II, III sequence** (Math 210, Math 220, Math 250), **Math 206 - Brief Calculus and Matrix Algebra**, and **Math 235 - Elementary Statistics**,

April 2006: We hear that full-time faculty member and statistician Yong Zeng has been awarded an NSF grant for three years beginning June 1, for a project entitled "**Statistical Analyisis of the Filtering Models with Marked Point Process Observations: Applications to Ultra-High Frequency Data**." The "data" referred to is financial trade-by-trade (or transaction) data, and this project can have important economic applications. Congratulations Yong!

15 April 2006: Our department is **featured on the UMKC home page** with a photograph of our Chair Kamel Rekab and an **article** outlining the progress we have made in the last two years. Take a look!

24 April to 2 May 2006: Our department is **featured a second time on the UMKC home page** with a **slide show** and **press release** about our recent work with the School of Education in creating "Mathematics for Teachers" courses.

April 2006: The new, mandatory "Mathematics Entrance Tests" written by our department on the Blackboard program for **Math 110** (College Algebra), **Math 206** (Brief Calculus and Matrix Algebra), and **Math 210** (Calculus I) begin to be taken by Summer 2006 students, and students preparing for Fall 2006.

27 April 2006: Our Chair Dr. Kamel Rekab, is elected **Vice President** of the Kansas Western-Missouri chapter of the ASA (American Statistical Association) at their Spring Meeting in Manhattan, KS.

9 May 2006: Over this semester, we have completely re-written both our Master of Science (MS) degree program, with concentration in either Mathematics or in Statistics, and our IPhD degree program *effective Fall 2006*.

12 July 2006: On **Wednesday July 26** from **3:00-4:30 pm in Royall Hall 206** we'll hold our third annual **Orientation** gathering for all Adjunct Lecturers and Graduate Teaching Assistants teaching in the department during Fall 2006. In addition to distributing general and specific information about department policies and the courses they will teach, and just getting to know them, we invite guests from the Math Resource Center and Arts & Sciences Academic Advising. As a department we continue this annual meeting to encourage from our entire "extended" faculty consistency and a high quality of teaching in all our courses.

11 August 2006: We are pleased to welcome this Fall to our department two new **Biostatisticians**, Xin Yan, as an **Associate Professor**, and Mark Gamalo as an **Assistant Professor**. Follow their links to read about their strong and very different backgrounds. We also welcome for the 2006-2007 academic year, **Visiting Professor** Venkatesulu Mandadi from India, whose field is **Differential Equations**.

25 September 2006: Dean Karen Vorst joined us at our department Faculty Meeting in an informative visit, to see us all face-to-face as well as tell us about upcoming changes to the College budget model.

16 October 2006: For the first time in the history of our department, we are pleased to host the

2006 Fall Meeting of the Kansas Western-Missouri Chapter of the ASA (American Statistical Association). Our Chair Dr. Kamel Rekab is currently the **Vice President** of the chapter. At dinner the speaker **Dr. Morgan C. Wang** of the Department of Statistics and Actuarial Science at the University of Central Florida discussed **Maxiumum Likelihood Regression Trees**. Members attended from:

> Quintiles, Pittsburg State University, EMB Statistical Solutions, Kansas State University, Hallmark, University of Kansas Medical Center, H&R Block, PRA International, AAFP, Commerce Bank, Midwest Research Institute, UMKC, and elsewhere.

5 April 2007: Dr. Kamel Rekab was elected the 2007-2008 **President** of the Kansas Western-Missouri chapter of the ASA (American Statistical Association) at their Spring Meeting in Manhattan, KS.

20-23 May 2007: Dr. Kamel Rekab traveled to **Shanghai, China** to give two talks (concerning work co-authored with Dr. Xin Yan) on interdisciplinary mathematical and statistical techniques.

30 May - 1 June 2007: Dr. Liana Sega was invited to and participated in a workshop at the Mathematical Sciences Research Institute of Berkeley, CA, titled **"Critical Issues in Education: Teaching Teachers Mathematics"**.

1 July 2007: The College of Arts and Sciences Dean appoints, as **Interim Chair** of the Department of Mathematics and Statistics, **Zhonghua "Josh" Peng**, UMKC Professor of Chemistry.

27 August 2007: Dean Karen Vorst joined us at our department Faculty Meeting in an informative visit, to see us all face-to-face as well as tell us about updates to the College budget model. Ours was the first department she chose to visit this year.

News about Student-Related Mat-

ters: talks, awards, publications, gatherings, mathematics competitions, and so on

15 February 2006: From Pembroke Hill Upper School, we hosted on a visit the Chair of their mathematics department, Ron Beeler, and 7 of his gifted and talented students, who drove over to discuss with us questions of mathematics in college and further careers. Three faculty members represented the department for this pleasant meeting.

7 March 2006: Several department faculty, staff, and graduate students participated as moderators and judges in the **UMKC Math and Science Competition** for high school students and teachers, organized by the UMKC High School/College (HSCP) Partnership.

4 May 2006: Our 2006 M.S. in Mathematics graduate **Breanne Volkerding** is awarded a **2005-2006 Graduate Teaching Assistant Superior Teaching Award** at the School of Graduate Studies 17th Annual Awards Convocation. Hers was one of just three such awards given in the School of Arts and Sciences. Congratulations, Breanne!

24 May 2006: We hear the good news that undergraduate mathematics major (and UMKC 2006 B.S. graduate) **Samantha Reynolds** has won one of two **1st place** awards in the third 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. In fact, **three UMKC Department of Mathematics and Statistics students were finalists** this year: **Samantha, Sam Butler-Hunziker, and Lisa Erickson** (also a UMKC 2006 B.S. graduate) [Last year on 9 May 2005, we heard that undergraduate mathematics major **Newlyn Walkup** won 1st place in the second annual contest. Newlyn's paper was then published in the MAA's online History of Mathematics magazine Convergence: Where Mathematics, History and Teaching Interact. The previous year on 24 April 2004, we heard that undergraduate mathematics major **Heath Yates** shared 1st place in the first such annual contest.] Samantha's paper is titled "**Maria Gaetana Agnesi: Female Mathematician and Brilliant Expositor of the Eighteenth Century**." She will receive a certificate from the MAA, a free MAA student membership for next year, and $25 worth of books from the MAA online bookstore. Her paper will also be published on the HOMSIGMAA website. Congratulations, Samantha! Her paper was written during Winter 2005, while the other two finalist papers were written during Winter 2006, all for Math 464 WI (History of Mathematics, Writing Inten-

sive).

May 2006: Undergraduate mathematics majors **Elizabeth Erickson, Samantha Reynolds, and Newlyn Walkup** graduate with the distinction of Departmental Honors. Congratulations!

13 July 2006: We receive the **2005-2006 Academic Year Senior Survey Results** for our Department of Mathematics and Statistics. This survey is taken by students after their Major Field exam during the semester they plan to graduate. Below is a sample of the responses from our **10** graduating undergraduate majors. Our department is doing well!

Have applied to or will attend Graduate or Professional school:
60% Mathematics & Statistics majors
47% College of Arts & Sciences
39% UMKC Overall

"Satisfied/Very Satisfied" with UMKC Preparation for Graduate School:
70% Mathematics & Statistics majors
55% College of Arts & Sciences
52% UMKC Overall

"Satisfied/Very Satisfied" with Academic Advising Services within our department:
90% Mathematics & Statistics majors
78% College of Arts & Sciences
79% UMKC Overall

"Very Satisfied" with Overall Experience within our department:
60% Mathematics & Statistics majors
35% College of Arts & Sciences
35% UMKC Overall

"Definitely Yes" that if they had it to do over again, they would Select the same Degree Program:
50% Mathematics & Statistics majors
40% College of Arts & Sciences
46% UMKC Overall

"Much Stronger" Problem Solving Ability:
50% Mathematics & Statistics majors
25% College of Arts & Sciences
29% UMKC Overall

"Much Stronger" Ability to Write Clearly:
40% Mathematics & Statistics majors
31% College of Arts & Sciences
27% UMKC Overall

14 September 2006: ATTENTION! Mathematics Majors & possible Majors! The first Fall 2006 gathering of our MAA (Mathematical Association of America) Student Chapter will be on **Friday, September 22 from 3:00-3:50 pm in Royall Hall Room 205 with Pizza and Soft Drinks!** [For more information about the MAA Student Chapter, contact Dr. Liana Sega.] Fol-

lowed by an Expository Mathematics Talk by **Dr. Tristan Londre** of MCC Blue River Community College [Tristan had Dr. Rhee as his PhD Advisor here.] Title: "**Clifford Algebras and Spacetime:A Way to Multiply Vectors that has Useful Applications**" at 4:00-4:50 pm in Haag Hall Room 309.

27 September 2006: We participate with a "poster" in the **First Student Success Poster Session** in the University Center as part of **Celebrate UMKC** week. Our "poster" showcased our department's many ways of supporting students across UMKC. [First photo: Liana Sega & Samantha Reynolds], [Second photo: Eric Hall & Samantha Reynolds]

10 November 2006: For the first time, from 1:00-3:00 pm, we sponsor a **Graduate Student Luncheon** for all UMKC graduate students in mathematics or statistics. This is an opportunity for our faculty to know not only our Graduate Teaching Assistants, but **all** our graduate students so we can continue to mentor or advise them as needed.

17 November 2006: We hosted a visit from 15 faculty members and students of the **Emporia State University** Department of Mathematics and Computer Science, who drove up to see UMKC mathematics students **Lindsey Ramsey** speak on "**Weierstrass' Proof that his 1872 'Pathological Function' is Everywhere Continuous but Nowhere Differentiable!**", and Bill Gessley speak on "**A Proof of Euler's 1750 Formula for Polyhedra V - E + F = 2 [Vertices - Edges + Faces = 2], and its Application to Pick's Theorem of 1899**" in our **Expository Talks Series**, eat dinner at Baja 600 on the Plaza, and lastly see a movie in the area. From our department, three faculty members joined the group for dinner. [See **picture**]

17 November 2006: In the **Expository Talks Series**, 4:00-4:50 pm, undergraduate mathematics (and secondary education) major **Lindsey Ramsey** gives a 20 minute talk,"**Weierstrass' Proof that his 1872 'Pathological Function' isEverywhere 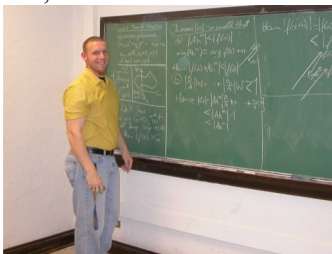Continuous but Nowhere Differentiable!**", [See **picture**] and undergraduate mathematics (and secondary education) major **Bill Gessley** gives a second 20 minute talk, "**A Proof of Euler's 1750 Formula for Polyhedra V - E + F = 2 [Vertices - Edges + Faces = 2], andits Application to Pick's Theorem of 1899**". [See **picture**.] For Lindsey, the talk was an assignment during Math 402 (Advanced Analysis I), and for Bill, the talk was an assignment during Math 424 (Mathematics for Secondary Teachers: Geometry).

1 December 2006: In the **Expository Talks Series**, undergraduate mathematics major **Sam Butler-Hunziker** gives a 30 minute talk, "**A Proof of the Fundamental Theorem of Algebra [every real or complex polynomial of degree n $\geq$ 1 has at least one real or complex root] using D'Alembert's Lemma of 1746**", [See **picture**.] and undergraduate mathematics (and secondary education) major **Tony Botello** gives a second 30 minute talk, "**A 1995 Proof and Algorithm for a 4 Person Envy-Free Cake-cutting Protocol[where each person believes his or her piece is _not_ less than anyone else's]**". [See **picture**.] For Sam, the talk was an assignment during Math 407 (Introduction to Complex Variables), and for Tony, the talk was an assignment during Math 402 (Advanced Analysis I).

December 2006: Undergraduate mathematics major **Brittany Brigham** graduates with the distinction of Departmental Honors. Congratulations!

23 January 2007: Our department is favorably mentioned in the **University News** student newspaper page 3 article "**Writing, math centers well used**" as follows: "Because the **Math Resource Center** has a successful working relationship with the math department, it is very well advertised. All students taking math courses receive flyers about it during classes, and professors regularly refer those who need help." The article also notes that the Math Resource Center "...serves about 3,000 students each year."

6 February 2007: We host a visit organized by the **UMKC Welcome Center** of 30 top 8th grade mathematics students from **Northwest Middle School** in Kansas City, Kansas. Three faculty members offered them a 45 minute mathematics presentation, assisted by Graduate Teaching Assistant Samantha Reynolds, and an undergraduate student. Afterward, the visiting students observed a **Calculus I** class in action, taught by our own Master's degree graduate and current Adjunct Lecturer Breanne Volkerding.

6 March 2007: Several department faculty, graduate students, and undergraduate students participated as moderators, judges, and computer operators in the **UMKC Math and**

Science Competition for high school students and teachers, organized by the UMKC High School/College (HSCP) Partnership. During the awards ceremony, our Chair Dr. Kamel Rekab announced the winners of the prizes for Mathematics and Statistics.

16 March 2007: We hear the good news that the new Honors Undergraduate Journal Lucerna has accepted for publication in the Fall 2007 Volume 2, an expository mathematics paper written by Mathematics major **Sam Butler-Hunziker** titled **"George Berkeley's Mathematical Philosophy and The Calculus"**, and another expository mathematics paper written by Mathematics major **Lisa Erickson**, titled **"Polygonal Numbers"**. Congratulations Sam and Lisa! The two papers were written during Winter 2006 for Math 464 WI (History of Mathematics, Writing Intensive).

12 April 2007: We hear excellent news about two of our current graduate students and two of our recent Master's degree graduates: **Li Deng**, MS graduate (Dec. 2006) with statistics emphasis, has been employed by **PRA International** in Overland Park, KS since February 2007. **Yue Zhu**, MS graduate (Dec. 2006) with statistics emphasis, has been employed as a **Statistical Analyst intern** by **T-mobile** in Seattle, WA since March 2007. **Nicole Wright**, MS graduate student (graduating May 2007), and our first department Graduate Student Representative has accepted a position from **Lockheed-Martin in Denver, CO**. **Steve Shattuck**, Interdisciplinary PhD graduate student, with coordinating discipline Mathematics (with Statistics emphasis) and co-discipline Education, has been awarded the **Chancellor's Doctoral Fellowship** for 2007-2008, following the completion of his **Preparing Future Faculty Fellowship** of 2004-2007. Dr. Chen is his IPhD advisor. Congratulations to them all!

•**13 April 2007:** In the **Expository Talks Series**, undergraduate mathematics major **Tera Smith** gives a 20 minute talk, **"A Proof of the 'Law of Quadratic Reciprocity' First proved by Gauss in 1801"**, [See **picture**.] and undergraduate mathematics major **Dan Brigham** gives a second

20 minute talk, **"At Most 4 Colors are Needed to Color any Plane Map:Kempe's Incorrect 1879 'Proof' and the Error Found by Heawood 10 Years Later!"**. [See **picture**.] For Tera, the talk was an assignment during Math 410 (Modern Algebra) taught by Eric Hall, and for Dan, the talk was an assignment during Math 414 (Mathematics for Secondary Teachers: Algebra & Analysis).

19 April 2007: At the first University of Saint Mary **Science and Math Undergraduate Research Forum** in Leavenworth, Kansas, faculty member Liana Sega gave an invited talk on **Careers in Mathematics** [one of 5 speakers, the other four being from Stowers Institute for Medical Research, Hill's Pet Nutrition (a Principal Scientist), the Department of Physics and Astronomy at the University of Kansas, and the Environmental Protection Agency], and another faculty member acted as a judge for the student poster session. We also distributed information about our department to all those potential students, and invited the mathematics majors for a future visit.

5 May 2007: Undergraduate mathematics major **David Jackson** graduates with the distinction of Departmental Honors. Congratulations, David!
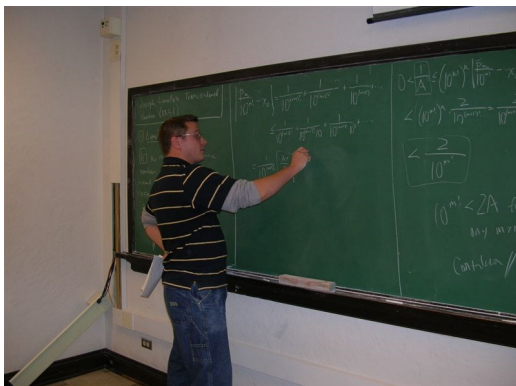

30 July 2007: On **Monday July 30** from **9:00 am - 2:00 pm**, we held our first **GTA Teaching Workshop**, organized by one of the GTA Supervisors, Dr. Liana Sega. This event replaced the annual **Orientation** gathering held the last three summers (2004-2006) for all Adjunct Lecturers and Graduate Teaching Assistants teaching in the department during the Fall. In addition to distributing general and specific information about department policies and the courses they will teach, and just getting to know them, we had each participating GTA give a 25 minute lecture, which was then criticized by two faculty members, as well as the other GTAs present. We also shared pizza, and generally discussed various teaching issues.
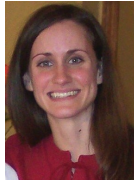
14 September 2007: We visit Pembroke Hill Upper School at the invitation of the Chair of their mathematics department, Ron Beeler, and 10 of his gifted and talented students, to discuss **"What is Mathematics"** as well as questions of the math-

ematics needed in college and further careers. Three faculty members represented the department.

19 September 2007: Graduate Teaching Assistant **Carol Hanson** is recognized at the Student Affairs Convocation as a graduate **Student Award Winner**, an award for "students who have persevered through difficulty while pursuing their academic goals". Her photo will be displayed on Sept. 20 at the Celebrate UMKC Convocation, and her award will be announced on the **Celebrate UMKC** web site. Congratulations, Carol!

2 November 2007: We hosted a visit from about 8 students and 3 faculty members of the **Emporia State University** Department of Mathematics, Computer Science, & Economics, who drove up to see Nicholas Baeth, University of Central Missouri, speak on "**Merlin: The Magic of Matrices**" in our **Expository Talks Series**, eat dinner at Genghis Khan's Mongolian BBQ, and lastly see a comedy show in the area. We were also visited by several students and 2 faculty members from the Department of Mathematics and Physics at William Jewell College. From our department, three faculty members joined the group for dinner. [See **picture**.]

16 November 2007: In the **Expository Talks Series**, undergraduate mathematics major **Whitney Berard** gives a **first** 20 minute talk, "**Benko's New 2007 Proof that: A given axb rectangle R can be decomposed into finitely-many rectangles which can be translated to compose another given parallel cxd rectangle R' if and only if area(R) = area(R') and a/c is rational.**", [See **picture**.] and undergraduate mathematics major **Brian Johnson** gives a **second** 20 minute talk, "**Saari's 1981 Proof that: In any election with $n \geq 3$ candidates, given $j < n$ voting vectors $W_1, ..., W_j$ (procedures which assign points to each candidate according to the voter's ranking), there exist voter profiles (choices of how the set of voters rank the candidates) so that when the voters vote for j of the candidates using voting vector W_j, then the jth candidate wins.**" [See **picture**.] For Whitney and Brian the talk was an assignment during Math 402 (Advanced Analysis I).

20 November 2007: We receive the **2006-2007 Academic Year Senior Survey Results** for our Department of Mathematics and Statistics. This survey is taken by students after their Major Field exam during the semester they plan to graduate. Below is a sample of the responses from our graduating undergraduate majors.

> **Have applied to or will attend Graduate or Professional school:**
> **43%** Mathematics & Statistics majors
> 30% College of Arts & Sciences
> 26% UMKC Overall
> **"Satisfied/Very Satisfied" with UMKC Preparation for Graduate School**
> **57%** Mathematics & Statistics majors
> 52% College of Arts & Sciences
> 53% UMKC Overall
> **"Very Satisfied" with Overall Experience within our department:**
> **67%** Mathematics & Statistics majors
> 34% College of Arts & Sciences
> 34% UMKC Overall
> **"Definitely Yes" that if they had it to do over again, they would Select the same Degree Program:**
> **50%** Mathematics & Statistics majors
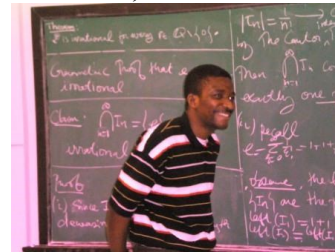> 41% College of Arts & Sciences
> 43% UMKC Overall
> **"Much Stronger" Problem Solving Ability:**
> **57%** Mathematics & Statistics majors
> 30% College of Arts & Sciences
> 30% UMKC Overall
> **"Much Stronger" Ability to Write Clearly:**
> **86%** Mathematics & Statistics majors
> 42% College of Arts & Sciences
> 43% UMKC Overall

30 November 2007: In the **Expository Talks Series**, undergraduate mathematics major **Yawo Ekpoh** gives a **first** 20 minute talk, "**Koksma's 1949 Proof that: e^r is irrational for all nonzero rational exponents r. [Plus! Sondow's new 2006 geometric proof that e is irrational.]**", [See **picture**.] then undergraduate mathematics major **Jamie Spenard** gives a **second** 20 minute talk,

"**Courant's 1941 Pancake Theorem Proof: Two bounded, open, connected plane sets can be cut by a single line that divides each set in half by area**". [See **picture**.] and finally undergraduate

mathematics major **Tom Scott** gives a **third** 20 minute talk, "**A Proof of Lebesgue's 1903 Criterion: A function *f*: [*a*, *b*] to R is Riemann-integrable if and only if *f* is bounded and the set of points of [*a*, *b*] at which *f* is not continuous has measure zero".** [See **picture**.] For Yawo, Jamie, and Tom the talk was an assignment during Math 402 (Advanced Analysis I).

14 December 2007: Undergraduate mathematics major **Raulee Lucero** graduates with the distinction of Departmental Honors. Congratulations, Raulee! [See **picture**.]
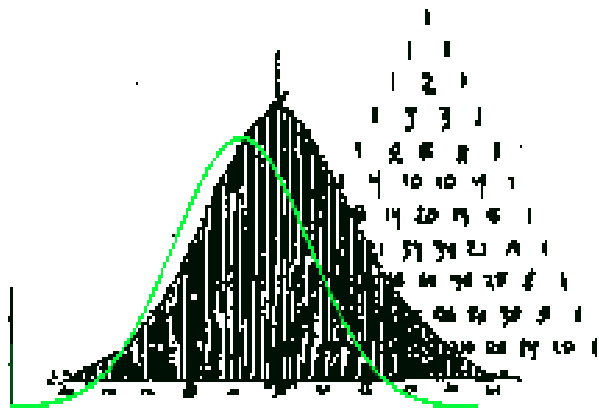
UMKC

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Editor: Selections from the
Department website.

Visit our Website at http://cas.umkc.edu/Mathematics

Become a Member!

We encourage you to register as a member of the **UMKC Alumni Association**. Just go to the UMKC alumni website www.umkcalumni.com , click on the tab at the top of screen called "MY PROFILE/LOGON", and follow the instructions.

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

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