23rd Annual Kansas City Regional
MATHEMATICS TECHNOLOGY EXPO

Schedule of Events and Abstracts

University of Missouri – Kansas City, Kansas City, MO
Friday and Saturday, October 4 and 5, 2013

Online MAA Store Discounts, valid Sept. 29 – Oct. 12, 2013
http://maa-store.hostedbywebstore.com/
35% discount off book purchases, Discount Code: KANEXPO3
May not be combined with any other offers or discounts.

Login Account Names and Passwords for EXPO 2013, valid October 4 – 5, 2013

Wireless Access Anywhere for EXPO participants and speakers:
1. Connect to the UMKCWPA wireless network. (Warning: This is unencrypted and should not be used for sensitive communications.)
2. Open a web browser, which should automatically load the guest login page.
3. Username: umkc-mathexpo
4. Password: R00mathEx

ILE (Ideal Learning Environment) Station Access in talk rooms, for EXPO speakers only:
1. User name: umkc-mathexpo
2. Password: R00mathEx

23rd Annual Kansas City Regional
MATHEMATICS TECHNOLOGY EXPO

Thank you!
We thank **UMKC** for their generous hospitality in providing the facilities for the EXPO. They provided the lecture hall, classrooms, and exhibitor areas, as well as computers, Internet connections, and audiovisual equipment. We thank the UMKC students and faculty, who have given up their classrooms!

We thank the following individuals at UMKC for making the EXPO possible:
- Elam O'Renick, Manager, Desktop Support, UMKC IS, for wireless and ILE access accounts, and ILE room technical help.
- The FA 307 lab technicians.
- Marcia Roberts, UMKC Room Scheduling, for all the room reservations.
- Tonya Crawford, Senior Manuscript Specialist, UMKC Archives, for information on the Haag Hall murals.
- All the UMKC undergraduate and graduate students who are volunteering their time on the two days of the EXPO.

We thank **Johnson County Community College** for funding paper and printing for EXPO mailings, the program booklet, EXPO packet information, and evaluations.

Registration in the 3rd floor lobby of Haag Hall
Friday, 8:00 am – 2:00 pm, and Saturday, 8:00 am – 11:00 am

Complimentary Continental Breakfasts
Continental breakfasts are available Friday and Saturday mornings in the registration area, compliments of Honeywell Federal Manufacturing and Technologies.

Lunches
The locations of the Math EXPO Friday and Saturday lunch buffets will be announced at the EXPO. The lunches are included as part of your registration fee. UMKC's FaCET (Faculty Center for Excellence in Teaching) provided a generous donation toward the lunches.

Handouts
Extra handouts from sessions should be placed at the Handout table on the 3rd floor lobby of Haag Hall, and will be available to EXPO participants at that location.

Textbook, Hardware, and Software Exhibitors
Friday, 8:00 am – 2:45 pm; Saturday, 8:00 am – 1:00 pm
Cengage, Honeywell Federal Manufacturing and Technologies,
McGraw-Hill, Thinkwell, and MAA Books
(Not all exhibitors will be present on Saturday.)

Door Prizes
We thank the following companies that have donated door prizes to be given away following the Keynote Address and the Invited Address:
Design Science, MacKichan, MathWorks, and Texas Instruments

Earn 1 hour of graduate credit through the UMKC School of Education Continuing Education.
Sign up at the EXPO Registration Table.

FRIDAY, October 4, 2013

Welcome and Introductions

Friday, 8:30 am
Haag 301

Joe Yanik, 2013 EXPO Group Chair, Emporia State University, Emporia, KS
Dr. Michael Kruger, Professor of Physics and Astronomy, Associate Dean, College of Arts and Sciences, UMKC

SESSION 1 – Keynote Address

Friday, 8:30 am – 9:50 am
Haag 301

Algebraic Reasoning and Sense Making:
Using Instructional Technology to Meet New Common Core Standards
Deborah Ives
Visiting Assistant Professor and Coordinator of Student Teachers, Montclair State University, Montclair, NJ

We will take a hands-on look at lessons and questioning techniques that use instructional technology and strategies with a focus on algebraic reasoning and sense making for middle and high school students. Real world applications, including Hip Hop Music, Fashion Design, Videogaming, Basketball, Restaurants, and Special Effects Performance Tasks come alive through videos and interactive challenges online. Learn how multimedia digital resources, such as those provided through fully-funded WNET Thirteen/PBS access, can be used effectively to engage students and support teachers in preparing to meet the new Common Core State Content Standards, Mathematical Practices, and Assessment expectations for all.

Door prizes will be awarded directly following this address.

SESSION 2 – *Friday, 10:00 am*

2A.
Haag 301
10:00 – 10:45 am

GeoGebra Visualizations in a Calculus Class
Ryan Mullen, Westminster College, Fulton, MO
We will present some ways that GeoGebra can be used to help visualize calculus concepts such as limits, secant lines approaching tangent lines, drawing derivative functions, Riemann sums, and optimization. Although some of the programs can be adapted for student use our focus is on creating classtime visualization material. A portion of the talk will also be devoted to our favorite aspect of GeoGebra, creating graphics files (easily) to put on tests and worksheets.

2B.
Haag 312
10:00 – 10:45 am

Flipping a Math Content Course for Pre-Service Elementary Teachers using Video, YouTube, and iPad Apps like Educreations and Doceri
Pari Ford, University of Nebraska at Kearney, Kearney, NE
In this talk I will share my experience with flipping a math content course for pre-service elementary teachers in Fall 2012 at the University of Nebraska at Kearney. I prepared video lessons for my students to view outside the class. Class would begin with me leading the class through a warm up problem to give me an idea of what questions they still had. The remainder of class was spent with the students working in groups on exercises and I observed their work, addressing questions as needed. Each group submitted one write up of their solutions at the end of class to be graded.

2C.
Haag 313
10:00 – 10:45 am

Transforming Students' Understandings of Graph and Rate with Multi-Touch
Carlos Castillo-Garsow, Eastern Washington University, Cheney WA, and
Andrew Bennett, Kansas State University, Manhattan, KS

The rise of cellphones and touch tablets bring new interface challenges for developing tools for the mathematics classroom. Control of mathlets is typically focused around a mouse: a single point of control with two axes of movement. But what new possibilities open up when multiple points of control become common place? Can mathematical ideas that students historically struggle with be made easier to understand? This presentation focuses on how multi-touch interfaces have the potential to aid in developing strong mathematical conceptions that students often struggle with. We will give examples of multi-touch tools for use in the classroom, as well as how they may be used directly in algebra and trigonometry classes to introduce and subtly reinforce strong understandings of core mathematical concepts such as graph and rate.

2D.
Fine Arts 307 Lab
10:00 – 10:45 am

WORKSHOP: Playing Web-Based Games with a Purpose: A New Approach to Teaching and Learning Statistics
Shonda Kuiper, Grinnell College, Grinnell, IA, and
Rod Sturdivant, West Point Military Academy, West Point, NY

We will demonstrate web-based games that introduce high school and undergraduate students to statistical methods from a variety of disciplines. In addition to demonstrating the games, we will provide investigative lab modules that present a research question in the context of a case study and encourage students to follow a complete process of statistical analysis. These labs are designed to 1) foster a sense of engagement, 2) have a low threat of failure early on but create a challenging environment that grows with the students' knowledge, 3) create realistic, adaptable, and straightforward models representing current research in a variety of disciplines, and 4) provide an intrinsic motivation for students to want to learn. Depending on the level of your students, these game-based labs can be completed in 1-3 days in a first or second statistics course or form the basis for a semester long research project.

SESSION 3 — *Friday, 10:45 am*

Haag 2nd and 3rd floor Lobbies
10:45 – 11:30 am

This time is provided especially for EXPO participants to visit the Exhibitors and the MAA book sale. The Exhibitors Area will also be open at other times during the EXPO.

SESSION 4 — *Friday, 11:30 am*

4A.
Haag 2nd floor Lobby is the meeting place
11:30 am – 12:15 pm

Rare and Historical Mathematics Books at Linda Hall Library
Bruce Bradley, Librarian for History of Science, Linda Hall Library

This is one of two separate opportunities for hands-on viewing of over a dozen books. It is not a tour. Examples: the 1482 first printed copy of Euclid's *Elements*, a 1637 copy of Descartes' *Discours*, the 1696 first calculus textbook of L'Hopital, books by Newton, Agnesi, Galileo, and more. The session will be offered again today, Session PS A, at 3:30 pm.

4B.
Haag 301
11:30 am – 12:15 pm

Technologies Used for First Time Flipping College Algebra – How I Flipped and Results I Observed – P.S. I'll Never Go Back!
Joseph Morse, Winnetonka High School, Kansas City, MO

In early October, 2012, I flipped my Dual Credit College Algebra classrooms. After flipping, I observed higher engagement of my students and at the end of the semester a significant jump in the class averages of my students compared to the previous year. In this session I will discuss what I did to make this shift successful. Key items discussed are:

•Making your mind over to flip your classroom – Letting go
•Administration support – Failure is an option
•Use of Blackboard to support the flipped classroom
•Subject portfolios – Keeping students on task
•Lecture videos, Powerpoints and the textbook – Which to use?
•WeBWorK – How I use this mathematics homework system
•Flipped classroom and the support of CCSS
•Results of an observational statistical study of the jump in achievement from last year
If you are on the fence of flipping your class, come listen, I may be able to convince you.

4C.
Haag 312
11:30 am –
12:15 pm

LaTeX for Beginners: Writing Math Without Images
Steven J. Wilson, Johnson County Community College, Overland Park, KS
Does your learning management system (LMS) allow you to use LaTeX, but you never learned how? Once you know the lingo, LaTeX can be faster than using an equation editor. The presenter will show how common snippets of mathematics can be written using basic LaTeX commands, and ask you to build more complex mathematical expressions. If you have a laptop with a wireless connection, bring it, and you can practice as we present.

4D.
Haag 313

11:30 am –
12:15 pm

COMMERCIAL DEMO: Customizing the Math Learning Environment: Enhanced WebAssign and MindTap
Matt Sameck, Cengage Learning
Instructors today use a wide range of digital materials to help students become successful in math, but resources can be daunting when students need to navigate multiple systems or don't have a clear path to the information they need. Join us as we explore new possibilities that allow all relevant digital assets related to your math course to be logically organized, sequenced, and navigable. Learn how to make the best use of digital materials and learn about their efficacy for your students. Best of all, you'll find out how these tools can be seamlessly integrated into your campus learning management system (LMS).

4E.
Fine Arts 307 Lab
11:30 am –
12:15 pm

WORKSHOP: Navigating Free Online Teaching Technologies: Piazza, Google Voice, and Hangouts and their Widgets
Stephanie Van Rhein, University of Missouri – Kansas City, Kansas City, MO
This presentation will contain a demonstration of the technologies used, with the firsthand experience of interacting with undergraduate math students. We will include tips on staying connected to the students and the material, while at the same time motivating the students to use the tools to their full potential. A part of the presentation will include interacting with the technologies and hopefully build a support network for anyone teaching or thinking about teaching online.

Piazza is a gathering place where students can ask, answer, and explore 24/7; it is very user friendly and great at displaying pictures and math equations, with an easy to use LaTeX equation editor. Google Voice lets you turn any computer into a phone. Google Hangout makes "face to face" office hours easy to set up and conduct, interacting up to 9 students at once, very easy to use, with great screen share options for instructors and students alike.

LUNCH
Friday, 12:15 pm – 1:30 pm – Location will be announced at the EXPO.

SESSION 5 – *Friday, 1:30 pm*

5A.
Haag 301
1:30 – 2:15 pm

Using Notebook SMART Recorder to Create Videos for the Flipped Classroom
Richard Gill, Blue Valley High School, Stilwell, KS
SMART Notebook software includes the SMART Recorder which can be used to create math videos, even if one does not have a SMART Board connected to the computer or laptop. This talk will include suggestions for use of the recorder, along with suggestions and steps for storing videos on Google Drive and using Windows Movie Maker to edit videos. You do not need previous experience with Notebook Software.

5B.
Haag 312
1:30 – 2:15 pm

The Challenges and Rewards of an Online Mathematics Graduate Program
Chad Wiley, Emporia State University, Emporia, KS
This talk is an overview of the graduate mathematics program at Emporia State University, which primarily serves online students. We will discuss the history of the program, the logistics of offering advanced mathematics courses online, and some of the challenges that the program must face.

5C.
Haag 313
1:30 – 2:15 pm

Using Geometer's Sketchpad to Draw Fractals
Nora Strasser, Friends University, Wichita, KS
This hands-on workshop will provide you with the tools to engage your students in an interactive geometrical activity. Geometer's Sketchpad will be used to draw fractals. During class, students are given instructions on how to create the Koch curve and snowflake. After the students master this basic construction, then the students are asked to extend the exercise by trying to create other fractals.

5D.
Fine Arts 307 Lab
1:30 – 2:15 pm

WORKSHOP: Writing Expository Mathematics in HTML 5
Kyle Siegrist, University of Alabama in Huntsville, Huntsville, AL
The HTML5 framework (HTML5, CSS, JavaScript) is the emerging standard for creating rich, interactive web pages that work in any modern browser on any platform, from smart phones to tablets to PCs. This workshop will focus on the components that are most important for teachers who want to create course materials in mathematics:
- MathJax for mathematical expressions.
- HTML5 elements for creating interactive web apps, including the canvas element, buttons, scrollbars, and other input/output controls.
- HTML5 elements for providing structure, including an element that allows content to be expanded or contracted (great for proofs and hints).
- CSS to control the style and presentation.
- JavaScript to make it all work together.

SESSION 6 – *Friday, 2:30 pm*

6A.
Haag 301
2:30 – 3:15 pm

Using Game Addiction with WeBWorK to Increase Student Success in Calculus
Gavin Waters, Missouri Western State University, St. Joseph, MO
This is about a study that we completed in Fall 2012. Using WeBWorK, we added non-credit achievement points which were obtained by doing homework to half of the students taking calculus. We obtained statistically significant results showing increased homework success. Also there was increased student retention. This "gamification" is available from WeBWorK and is reasonable to set up.

6B.	***Data Analysis for Everyone Using Tinkerplots***
Haag 312	**Bill McGalliard, University of Central Missouri, Warrensburg, MO**
2:30 – 3:15 pm	This will be an introductory demonstration of the elementary data analysis software package called Tinkerplots. It will concentrate on the basic functionality of the software package while simultaneously discussing how it can be utilized in a secondary classroom for the teaching and learning of probability and statistics. Attendees will be given copies of classroom ready lessons that are appropriate for multiple educational levels.

6C.	***COMMERCIAL DEMO: AIM: Achievement in Mathematics with Adaptive Learning using ALEKS***
Haag 313	**Eden Donahou & Barbara Lott, Seminole State College of Florida, Sanford, FL**
2:30 – 3:15 pm	Low self-efficacy continues to be a problem with today's mathematics students. Eden & Barbara will demonstrate how they teach using a diagnostic-adaptive learning program, to help students achieve success in their current and subsequent math courses. Past insufficient performance does not determine a person's aptitude. With the use of a report driven approach to teaching and learning both students and instructors can experience the joy of mathematics again.

6D.	***WORKSHOP: Rethinking Business Calculus in the Era of Laptops and Spreadsheets***
Fine Arts 307 Lab	**Mike May, Saint Louis University, St. Louis, MO**
2:30 – 3:15 pm	The chapter on Business and Finance in the 2004 CRAFTY report "Voices of the Partner Disciplines" had a number of recommendations, including more extensive use of spreadsheets and modeling. It also suggested mathematics faculty should engage in discussions with the business faculty to see what they wanted out of the mathematics courses for their students. We have attempted to do this in the one semester calculus course aimed at business students. Rather than attempting this as an add-on to a text that is technology neutral, we wrote an electronic text that assumes the students will have a computer with a spreadsheet and the internet available for their classes. It is now reasonable to assume that students will bring their own computers. We will look at features of the text and reactions from students and faculty in both business and mathematics.

POST-SESSIONS *(A, B, C, and D) Friday, 3:30 pm*

P-S A.	***Rare and Historical Mathematics Books at Linda Hall Library***
Haag 2nd floor Lobby is the meeting place	**Bruce Bradley, Librarian for History of Science, Linda Hall Library**
3:30 pm	This is the 2nd of two separate opportunities for hands-on viewing of over a dozen books; it is not a tour. Examples: the 1482 first printed copy of Euclid's *Elements*, a 1637 copy of Descartes' *Discours*, the 1696 first calculus textbook of L'Hopital, books by Newton, Agnesi, Galileo, and more.

P-S B .	***Project NexT – Fall Meeting***
Haag 301	Organized by Zdenka Guadarrama, Rockhurst University, Kansas City, MO
3:30 pm	

P-S C .	***MOMATYC Meeting***
Haag 312	(Interested KAMATYC and MOMATYC participants will go to supper together after the meetings.)
3:30 pm	

P-S D.	***KAMATYC Meeting***
Haag 313	(Interested KAMATYC and MOMATYC participants will go to supper together after the meetings.)
3:30 pm	

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SATURDAY, October 5, 2013

Welcome and Introductions

Saturday, 8:30 am
Haag 301
Joe Yanik, 2013 EXPO Group Chair, Emporia State University, Emporia, KS

SESSION 7 – Invited Address

Saturday, 8:30 am – 9:50 am
Haag 301

Probability and Technology: The Perfect Match
Kyle Siegrist
Professor of Mathematics at the University of Alabama in Huntsville, Huntsville, AL

My main thesis is that perhaps no other subject in mathematics benefits more from technology than probability. Probability is based on a central paradigm the repeatable random experiment. Historically, progress in probability has been driven by great problems based on experiments that are conceptually simple but sometimes mathematically deep: the problem of points, the matching problem, the secretary problem, the coupon collector problem... In the classroom, random experiments cannot easily be illustrated by conventional methods, but can come to life in compelling ways with appropriate technology. In research, computer simulations can lead to understanding in problems that are mathematically intractable by analytic methods. This presentation will be a random walk through some of my favorite problems and theorems in probability, illustrated with simulations, animations, and interactive games.

Door prizes will be awarded directly following this address.

SESSION 8 – *Saturday, 10:00 am*

Saturday, 10:00 am – 10:45 am

8A.
Haag 301
10:00 – 10:45 am

Lightning Talks (short 5 – 7 minute talks)
Using GeoGebra to Interpolate Polynomials and Cheat at Angry Birds
Nick Haverhals, Avila University, Kansas City, MO
The presenter will discuss a project used in a college algebra course to introduce students to using GeoGebra. The project was also an introduction to polynomial interpolation, which was then used to gain an advantage while playing a popular video game.

Poll Everywhere and Anywhere: Surveys for Mobile Devices
Karla DeCoster, Spring Hill High School, Spring Hill, KS
Want to be the cool teacher at school? Just have the students use their mobile devices in class to check learning! Polleverywhere.com is a way to add surveys (multiple choice and open ended questions) into a lecture, review period, or bellwork. All a student needs is a device that connects to the internet. During the session you will participate in various polls and explore the management system of poll everywhere. This site is great for checking for learning, reviewing for state assessments or ACT, or just for fun.

Will Your Students Survive the Zombie Apocalypse? Practical Matrix Analysis
David Ewing, University of Central Missouri, Warrensburg, MO
This lightning talk will provide a good, practical(?) example of how analyzing present trends, using a system of linear equations, applying matrix operations (and Markov chains), and analyzing data via a spreadsheet may predict the future. Find out if your students will survive the Zombie Apocalypse (and your math class)!

Programming Data Structures and Algorithms for Mathematics Majors
Mark Hunter, McPherson College, McPherson, KS
Mathematical concepts can be used as the base for an introduction to programming course or programming can be used to augment mathematics courses. Programming for mathematics majors combines factorials, sequences, encoding, graph theory, financials and other mathematical concepts with programming conditionals, looping, recursions, and functions. Students can explore concepts by writing programs or programs can be used during lectures to demonstrate them. Examples in Java, JavaScript, Basic, and spreadsheets will be shown. Free resources and programming environments that do not require software installation will be discussed.

8B.
Haag 312
10:00 – 10:45 am

TI-Nspire and the Navigator System
Morning Pruitt, Eudora High School, Eudora, KS
After a brief introduction to the TI-Nspire, participants will learn how to use the Nspire to help students develop models of speed and velocity using the Motion Match graphing feature in this hands-on demonstration. During the presentation participants will see how the Navigator system can be incorporated into an activity through quick polls and class capture capabilities.

8C.
Haag 313
10:00 – 10:45 am

Reflections on Intermediate Algebra Course Redesign at UCM using MyMathLab
Phoebe McLaughlin, University of Central Missouri, Warrensburg, MO
Intermediate Algebra at the University of Central Missouri (UCM) is a developmental math course offered by the Department of Mathematics and Computer Science. The course was facing low student success rates and inconsistency among sections before the redesign project. A team of faculty, administrators, and technology professionals, redesigned Intermediate Algebra with the Emporium Model. Instead of passive learning, students were actively engaged with course content and fellow students during the class meetings. Interactive tutorials, immediate grading and feedback, and online homework and testing were provided through the instructional software, MyMathLab.

After piloting the Intermediate Algebra Redesign Project in spring 2012, UCM moved all sections to the redesigned format in fall 2012. Analysis report of learning outcome data, course completion data, and cost reduction data, between fall 2011 traditional sections and fall 2012 redesigned sections, was generated when the semester was over. The report shows that, with the baseline of 100 points, the average final exam score of fall 2011 traditional sections was 62.65, while that of fall 2012 redesigned sections was 84.97. The percentage of students receiving A, B, or C as their course grades increased from 68.28% to 81.49%. The summary also demonstrates cost savings as 10 sections were offered to 435 students in fall 2011 and 8 sections to 497 students in fall 2012. Initial results of Intermediate Algebra spring 2013 are consistent with the findings of fall 2012. Comparative data between spring 2012 and spring 2013 will be collected and analyzed in the near future.

8D.
Fine Arts 307 Lab
10:00 – 10:45 am

WORKSHOP: GeoGebra, Dynamic Open Source Software for Use Across the Mathematics Curriculum
Mike May, Saint Louis University, St. Louis, MO
GeoGebra is a free, cross platform, open source program that can be used to present and explore mathematics across a broad range of courses including algebra, geometry, calculus, and statistics. We will introduce the program and show some simple uses across a spectrum of courses. We will also look at creating graphics to import into tests and quizzes, and finding resources at geogebratube.org, a website where more than 30,000 applets and lessons are available. Participants are encouraged to bring their laptops so that they can bring materials back to their own classrooms. We will also sketch out planned developments including tablet versions and 3D versions. No prior experience assumed.

SESSION 9 – *Saturday, 11:00 am*

9A.
Haag 301
11:00 – 11:45 am

Digging Deeper into Algebraic Reasoning and Sense Making: Using Instructional Technology to Meet New Common Core Standards
Deborah Ives, Montclair State University, Montclair, NJ
Participants will further explore interactives and performance tasks in hands-on activities using instructional technology and strategies with a focus on algebraic reasoning and sense making for middle and high school students. The real world applications, Hip Hop Music, Fashion Design, Videogaming, Basketball, Restaurants, and Special Effects Tasks will be examined in terms of additional challenges and extensions. Learn how these multimedia digital resources provided through fully-funded WNET Thirteen/PBS access, can be used effectively to engage students and support teachers in preparing to meet the new Common Core State Content Standards, Mathematical Practices, and Assessment expectations for all.

9B.
Haag 312
11:00 – 11:45 am

TI-Nspire Document Player – What Is It? Why Should I Use It? How It Can Help with the Common Core Standards
Mike Koehler, Blue Valley North High School, Overland Park, KS
Texas Instruments has a vast library of over 1000 activities for the TI-Nspire. Mathematics activities exist in the areas of Middle School, Algebra, Geometry, Pre-calculus, Calculus and Statistics. Designed to be used with the Nspire handheld or computer software, these activities are also available to teachers through the TI-Document Player at no charge. This session will cover activities that can be used with students to further their understanding of mathematics without the need to purchase handhelds or software. Can be used to help with the contextual understanding needed for CCSSM. Participants should bring laptops.

9C.	***Using Sage in a Calculus III Course***
Haag 313	**David McCune, William Jewell College, Liberty, MO**
11:00 – 11:45 am	

In this talk I will show how I used Sage in my Calculus III course from Fall 2012. I found Sage extremely useful, and I used it on almost a daily basis for classroom demonstrations. In particular, I used Sage to draw cross products, parameterized curves in 3-space, the graphs of two variable functions, the regions of integration for double integrals, etc. In this talk I will demonstrate the Sage code that performs these tasks, going topic-by-topic through my Calculus III schedule. Although I offered to show my students how to use Sage, I didn't force them to use it. So my use of Sage was limited to class time.

9D.	***WORKSHOP: Building Mobile-Friendly Active Graphs using JSXGraph***
Fine Arts 307 Lab	**Andrew Bennett, Kansas State University, Manhattan, KS, and**
11:00 – 11:45 am	**Carlos Castillo-Garsow, Eastern Washington University, Cheney WA**

The rise of cellphones and touch tablets bring new interface challenges for developing tools for the mathematics classroom. JSXGraph is a JavaScript library that allows you to construct live graphs in a web page (similar to GeoGebra). Once the graph is created, it can be manipulated by students without further programming, so JSXGraph can create useful tools for classes at all levels. Since it is JavaScript based, it works on almost all devices, including those that don't support Java or Flash (such as an iPad). JSXGraph also supports multi-touch for devices with that capability. In this workshop we will go over the basics of creating a JSXGraph element in a web page, and how to use JavaScript to have the graph interact with other elements on the page. Basic experience with HTML is all the background needed.

Saturday, 11:45 am – 1:00 pm

LUNCH and Brainstorming – Location will be announced at the EXPO.

Your Favorite Way to Maximize Learning with Technology

How do we robustly support human-to-human teaching of mathematics using the many advantages of mathematics technology to maximize the learning of students allowing for the messiness of learning itself? Bring your particular favorite idea or two to our discussion. Be specific!

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We hope that you enjoyed the EXPO. If you have comments that you would like to share, please e-mail any of the committee members as listed on the next page.

www.kcmathtechexpo.org

The 2013 EXPO Group

- **Joe Yanik** (2009 – 2013 EXPO Chair), hyanik@emporia.edu,
  Emporia State University, Emporia, KS

- **Richard Delaware** (Financial Secretary, Site Coordinator; EXPO Chair 1993 & 1994),
  delawarer@umkc.edu, University of Missouri – Kansas City, Kansas City, MO

- **David Ewing** (Publicity), ewing@ucmo.edu,
  University of Central Missouri, Warrensburg, MO

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- **Steven J. Wilson** (Publications), swilson@jccc.edu,
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Events/Activities in Kansas City: www.kansascity.com