16th Annual Kansas City Regional
MATHEMATICS
TECHNOLOGY
EXPO

at the Richardson Science Center, Rockhurst University, Kansas City, MO
Friday and Saturday, September 29 and 30, 2006

Schedule of Events and Abstracts

We thank Rockhurst University for their generous hospitality in providing the lecture hall, classrooms, and exhibitor area, as well as computers, Internet connections and audiovisual equipment. We thank the Rockhurst students and faculty, who have given up their classrooms so the EXPO can take place.
Our thanks also go to the following individuals from Rockhurst for their technical support of the EXPO: Mike Marshall, Network Analyst, and Mike Stanclift, Support Technician.   We also thank Kimberly Roberts, Administrative Assistant, for her work on behalf of the EXPO.

We thank the Kansas City Professional Development Council (KCPDC) for sponsoring many EXPO participants. We thank Johnson County Community College for funding paper and printing for EXPO mailings, the program booklet, and EXPO packet information and we thank William Jewell College for funding paper and printing of promotional mailings.

Registration in the lobby of Richardson Science Center
Friday, 8:00 a.m. – 1:45 p.m., and Saturday, 8:00 a.m. – 1:00 p.m.

Complimentary Continental Breakfasts
Continental breakfasts are available both Friday and Saturday mornings in the registration area, sponsored in part by Addison Wesley, Prentice Hall, and Thomson Learning.

Lunches
Friday buffet is $8.50 a person and the Saturday box lunch is $7.50 a person. Lunches were ordered with pre-registration, but there may be some available for purchase at the EXPO registration table.

Conference Lounge, Room 206, Friday, 10:15 a.m. – 3:30 p.m.; Saturday, 8:00 a.m. – 1:45 p.m.
Extra copies of handouts from talks will be placed in the Conference Lounge. Internet access is available.

Textbook, Hardware, and Software Exhibitors: Friday, 8:00 – 2:45 p.m.; Saturday, 8:00 a.m. – 1:00 p.m.
Addison Wesley, Hawkes Learning Systems, Houghton Mifflin, McGraw Hill, Prentice Hall, Wiley, WH Freeman, 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, Hawkes Learning Systems, Houghton Mifflin, MacKichan, Minitab, and Texas Instruments

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

FRIDAY, September 29, 2006

Welcome and Introductions
Friday, 8:30 a.m.
Room 115

Richard Gill, 2006 EXPO Group Chair, Blue Valley High School, Stilwell, KS
Rev. Thomas B. Curran, O.S.F.S., President of Rockhurst University, Kansas City, MO

SESSION 1 – Keynote Address
Friday, 8:30 a.m. – 9:50 a.m.
Room 115

Research on Technology in Mathematics Teaching and Learning: Implications for Mathematics Education
Glendon Blume
Professor of Education, Mathematics Education
Pennsylvania State University, University Park, PA

Approximately two weeks prior to the EXPO, Kathleen Heid, our Keynote Speaker, had to cancel.
Her colleague, Glendon Blume, has graciously agreed to speak in her place.

Glen Blume is a pioneer researcher in the area of technology and the teaching and learning of mathematics.
He has partnered with Kathleen Heid to co-edit the internationally authored ***Research on Technology and
the Teaching and Learning of Mathematics: Syntheses and Perspectives, Volumes 1& 2*** (2006).
Dr. Blume has co-directed or been a research associate on six NSF-funded research and curriculum
development projects and is currently working with the Mid-Atlantic Center for Mathematics Teaching
and Learning. He has authored interpretive reports on the 1992, 1996, and 2003 mathematics assessments
of the NAEP, the National Assessment of Educational Progress.

Over the past two decades, mathematics education researchers have focused on determining how students
learn in the context of technology-intensive mathematics settings. The volumes mentioned above include
chapters written by world leaders in technology-intensive research, technology development, and curriculum
development, and they address the role of technology in the learning of algebra, geometry, mathematical
modeling and calculus. Also included is how this research has been used in the construction of some
prominent mathematics-specific technologies. Dr. Blume will discuss how ideas emerging in these volumes
can be used by mathematics instructors and by those who develop mathematics curricula.

Door prizes will be awarded directly following Glen Blume's address.

SESSION 2
Friday, 10:00 a.m. – 10:45 a.m.

2A.   ***Business Math: A Pedagogical Odyssey***
Room 203   **Steve Wilson, Johnson County Community College, Overland Park, KS**
The speaker will share the evolution of his business math class over the last 15 years, including
percent as the central concept, minimal use of formulas, financial calculators for compounding,
spreadsheets for exploration, online homework for practice, comparative data, and a vision for
the future. This approach to the business math course differs from the current selection of

textbooks, which usually include a heavy review of arithmetic and a multiplicity of formulas, or a strong dose of basic algebra.

Presider: Richard Parshall, DeVry University, Kansas City, MO

2B.   ***Teaching Statistics with Interdisciplinary Data Collection Applets***
Room 205   **Shonda Kuiper, Grinnell College, Grinnell, IA**
This demonstration will present laboratory modules appropriate for a 1st or 2nd statistics course that emphasizes the process of science and data analysis relevant for science and social science students. The purpose is to strengthen the interdisciplinary dialog between statisticians and scientific investigators in the future. Each lab consists of an introduction to the statistical concept through a basic and more general real world example, reading of a journal article from the discipline of interest, and an applet in which the students can conduct their own experiment and collect real data.

Presider: Rick Silvey, University of Saint Mary, Leavenworth, KS

2C.   ***Video and Podcasting: Uses in the Math Classroom***
Room 302   **Mike Martin, Johnson County Community College, Overland Park, KS**
The presenter will exhibit calculus concept videos, relating how they were conceived, brought to production, and utilized within the math classroom. Desktop video production will be briefly outlined as it relates to incorporating results from mathematics software, mathematical formulae, and an application context. Next, an overview of podcasting will be outlined with pointers to additional resources. The podcasting portion of the talk will primarily focus on utilization within the early undergraduate mathematics curriculum.

Presider: Libby Corriston, Johnson County Community College, Overland Park, KS

2D.   ***Spreadsheet Tools for Taking the Torture Out of Truth Tables***
Room 306   **John Cigas, Rockhurst University, Kansas City, MO**
This demonstration will focus on using a spreadsheet, specifically *MS Excel*, to create and manipulate truth tables. It will provide information for teachers as well as exercises to use in the classroom to reinforce common logic topics. Specific topics include:

- Excel's built-in logical operators
- Numeric representation and formatting of logical values
- Generating a 2^n row truth table
- Techniques for creating additional logical operators, like implication, using *VBA* (Visual Basic for Applications)
- Techniques for testing tautologies/equivalence
- Classroom exercises
- Links, references, examples, etc.

Presider: Keith Brandt, Rockhurst University, Kansas City, MO

SESSION 3   *Exhibitors*
Friday, 10:45 a.m. – 11:30 a.m.

Lobby and   This time is provided especially so that EXPO participants will have a chance to visit
Room 206   the Exhibitors in the lobby of the Richardson Science Center and also to visit the Conference Lounge, Room 206, where extra handouts from EXPO sessions will be located, and Internet access is available. The Exhibitors Area and the Conference Lounge will also be open at other times during the EXPO.

4A. **COMMERCIAL DEMONSTRATION**
Room 203 ***MathZone: Reaching Auditory, Visual, and Tactile Learners Through An Online Learning Homework Management System***
Tony Weber and Cathy Riley, McGraw Hill Publishing
See a demonstration of *MathZone*, McGraw-Hill's On-line innovative homework management system. *MathZone* combines book-specific practice and tutorial content with automatic, online assessment. You can utilize *MathZone's* algorithmic capabilities to generate multiple versions of assignments and quizzes, edit the problems and exercises McGraw-Hill has provided, or create your own. *MathZone's* automatic gradebook function makes tracking student progress a snap. Use the assessment section of *MathZone* to diagnose students' weaknesses before they fall behind in class by determining their learning gaps.
Presider: Richard Parshall, DeVry University, Kansas City, MO

4B. ***DISCUSSION: Online Homework, Quizzes, and Tests in Mathematics Courses***
Room 205 **Moderators:**
Ken Eichman, Metropolitan Community College – Longview, Lee's Summit, MO, and David Ewing, Central Missouri State University, Warrensburg, MO
Recently, at a local institution an instructor gave two students an "F" for a course because they worked together on all the exams for a class which was taken online. The students won the appeal, even though they admitted working together because they had not specifically been told that working together on exams was cheating. Do you have frustrations or concerns about students in online courses taking exams online? What measures can be taken to reduce the likelihood of online cheating? Does requiring students to take proctored exams defeat the purpose of online courses? Come and share your own experiences and those of your colleagues. Hear how others are coping creatively with this issue.

4C. ***Preliminary Report – Using CPS in the Classroom***
Room 302 ***(Classroom Performance System – with Clickers)***
Matt Ortman and Richard Gill, Blue Valley High School, Stilwell, KS
With the Classroom Performance System, teachers can collect data of student performance on formative and summative assessments. Blue Valley has recently purchased 4 classroom sets of "clickers" and is using them as part of school improvement. This session will give a preliminary report on the effectiveness of the system and the effect it is having on student learning in the mathematics classroom.   The session will include a short demonstration of the system, but will not address how to use the system.
Presider: Chuck Pheatt, Emporia State University, Emporia, KS

4D. ***From Start to Finish: Using Technology Throughout the Semester in an***
Room 306 ***Introductory Statistics Course***
Theresa McChesney and Beth Edmonds, Johnson County Community College, Overland Park, KS
Use of the internet, when combined with other new and not so new technologies like *Minitab* and *Excel*, help make the possibilities for data collection and analysis in a classroom setting almost endless. Join Theresa and Beth as they present ways they have incorporated technology in their Introductory Statistics courses at Johnson County Community College. They will discuss and demonstrate ways they use current technologies to enhance their teaching and broaden their students' learning. Topics covered in this session are the statistics capabilities of graphing calculators (specifically *TI-83/84*, and *TI-89*), *Excel* statistical utilities and functions, *Minitab*, and the internet. The stated technologies

will be demonstrated as they may be applied to descriptive statistics, regression analysis, basic probability, the Central Limit Theorem, confidence intervals, and hypothesis tests.
Presider: Carl Anderson, Johnson County Community College, Overland Park, KS

LUNCH
Friday, 12:15 p.m. – 1:30 p.m. in Massman Hall

SESSION 5
Friday,
1:30 p.m. – 2:15 p.m. for 5A, 5D, and 5E
1:30 p.m. – 3:15 p.m. for 5B and 5C

5A. | ***COMMERCIAL DEMONSTRATION***
Room 125 | ***Enhancing Student Performance Using Hawkes Software in College, Intermediate, and Introductory Algebra***
1:30 p.m. – 2:15 p.m.
DeeAnn VanLuyck, Fort Scott Community College, Fort Scott, KS
Mathematics is one discipline that requires students to practice skills to gain understanding and proficiency. To assist students in accomplishing this, the *Hawkes Learning System* provides an instructional alternative to the text driven curriculum. Students are required to complete problem sets using a computer, thus eliminating excuses for not doing the practice before testing. The software is based on mastery learning and is supported by traditional teacher driven instruction that provides modeling, explanation, and application prior to the student working the practice exercises. This presentation will include software for introductory, intermediate, and college algebra. Sample lessons will be demonstrated as well as a discussion of the impact on instructional methodology. A comparison of student achievement in traditional textbook driven courses with those completing the *Hawkes Learning System* will be presented.
Presider: Brian Hollenbeck, Emporia State University, Emporia, KS

5B. | *WORKSHOP*
Room 203 | ***Constructing Interactive Worksheets, Tutorials and Quizzes Using Excel.***
1:30 p.m. – 3:15 p.m.
Merrill Goldberg, Rockhurst University, Kansas City, MO
Following last year's talk presenting some of these spreadsheets, a request was made to lengthen the presentation to include a hands-on workshop. So, here it is! *Excel* is used to produce attractive worksheets that do not look like spreadsheets. For "check yourself" exercises, each row is a problem with boxes for answers to be supplied. The answer box turns green or red depending on whether the answer submitted is correct or wrong. For "step by step" tutorial exercise, the student may enter parameters for a problem and then a step by step plan (often a calculation) is presented to the student. A variety of samples will be available and several basic techniques using *Excel* features will be shown. Then, participants will be encouraged to develop their own worksheets based on suggested topics or others. A basic familiarity with *Excel* is strongly suggested – though many new skills (including conditional formatting, protection and display options) will be presented. Handouts and demo worksheets will be available.
Presider: Larry Long, DeVry University, Kansas City, MO

5C.   **_WORKSHOP_**
Room 205   **_Custom Animation in Microsoft PowerPoint: A Powerful Tool for_**
      Teaching Mathematics
      1:30 p.m. – 3:15 p.m.
      Wendell Wyatt, Northeastern State University, Tahlequah, OK
      The objective of the workshop is that participants will learn how to use the custom animation
      feature of _PowerPoint_ to construct their own animated slides. The presenter will show 10-15
      slides in which the custom animation feature has been used to demonstrate or teach a
      mathematics concept. Two or three of these slides will be selected as construction models
      for the workshop. Step-by-step instructions will be provided both orally and in text to guide
      the participants through the construction process. The mathematics content in the
      demonstration slides is from a mathematics course for pre-service elementary teachers.
      However, the mathematics content will not be the focus of the workshop. Learning how to
      use the many custom animation features of _PowerPoint_ to demonstrate and illustrate
      mathematical ideas will be the central focus. Workshop participants will be given copies of
      the presenter's demonstration slides as well as an electronic collection of objects that the
      presenter has created in the construction of hundreds of slides used in his classes.
      Participants should bring a blank CD or flash drive on which to copy their creations and to
      transport electronic materials that will be shared by the presenter. Level of technical
      expertise expected of workshop participants is a familiarity with Microsoft Office
      PowerPoint.
      Presider: Chuck Pheatt, Emporia State University, Emporia, KS

5D.   **_Using MyMathLab for Course Delivery, Assignments, and Course Management_**
Room 302   1:30 p.m. – 2:15 p.m.
      Susan Knights, Boise State University, Boise, ID, and
      Steve Day, Addison Wesley tech specialist
      Susan Knights will describe how _MyMathLab_ is used at Boise State University. Five years
      ago, the Boise State math department implemented a hybrid model for the elementary and
      intermediate algebra courses, about 24 sections of each course. Students use _MyMathLab_ for
      course delivery – video lectures, interactive text explanations, etc. All homework
      assignments are online. Tests are paper-and-pencil exams given in class. The program has
      been used for 9 semesters and there are 1600-1700 students each semester in the two
      courses. Steve Day, will demonstrate _Math XL/MyMathLab_.
      Presider: Joe Yanik, Emporia State University, Emporia, KS

5E.   **_Question and Answer Session with Our Keynote Speaker_**
Room 306   1:30 p.m. – 2:15 p.m.
      Glendon Blume, Pennsylvania State University, University Park, PA
      This session is offered as an opportunity for EXPO participants to spend more time with our
      Keynote Speaker, and to ask additional questions.
      Presiders: Andy Bennett, Kansas State University, Manhattan, KS

SESSION 6
Friday, 2:30 p.m. – 3:15 p.m.

6A.   **_Conjecture to Proof: Using Geometer's SketchPad for Proof-based Geometry_**
Room 125   **Christine Benson and Cheryl Malm, Northwest Missouri State, Maryville, MO**
      The goal of the speakers is to try to dispel the myth that technology is not compatible with
      rigorous proof-based geometry. Participants will see an environment where students use
      Geometer's Sketchpad to experience, explore, and make conjectures about geometry; and
      generate proofs to verify and explain conjectures using the language of mathematics.   They

will show how technology can raise the levels of thinking in students so that they better understand what they are proving. The speakers will show examples of how commonly used theorems can be modeled to encourage exploration, conjecture, and proof.
Presider: Steve Wilson, Johnson County Community College, Overland Park, KS

6B.
Room 302

Using a Tablet Computer to Teach Mathematics
Timothy Warkentin, Cloud County Community College, Concordia, KS
Discover the missing technological link between fixed prewritten handouts or PowerPoint notes and the inconvenience of writing tablets or marker boards. This talk will focus on my experiences teaching mathematics with a tablet computer for two semesters at Cloud County Community College. My goal is to provide secondary and college level mathematics teachers with enough information to decide whether a tablet computer would be useful in their particular situation. To this end I will cover both the benefits and drawbacks to using a tablet computer in the classroom. Included will be information on technical details, equipment malfunctions, techniques for effective use of the tablet software, administrative support, technical support, webpage design, advantages/disadvantages for the student, and advantages/disadvantages for the instructor.
Presider: Uwe Conrad, Cowley County Community College, Wichita, KS

6C.
Room 306

A Common Calculus Laboratory Course for Traditional Calculus and BioCalculus Students
Timothy Comar, Benedictine University, Lisle, IL
A unique aspect of the first semester calculus experience at Benedictine University is that the concurrent lab course consists of students from both the traditional calculus course for mathematics, physics, and engineering majors and the biocalculus course for biology majors. In this one-credit lab course, students with different academic aspirations, taking calculus courses with distinct syllabi and course goals, learn how to collaborate effectively while developing skills to use the computer algebra system *Derive* to analyze and solve problems. This course also provides us with the opportunity to compare performance of students taking the two different calculus courses. We will describe the issues in developing this common lab course to serve the needs of both student audiences, the syllabus, the choice of projects, and assessment of performance of the two groups of students.
Presider: Rick Silvey, University of Saint Mary, Leavenworth, KS

POST-SESSIONS for KAMATYC and MOMATYC

Friday, 3:30 p.m.
Room 302   MOMATYC – informal meeting
Room 306   KAMATYC – informal meeting
(Interested KAMATYC and MOMATYC participants will go to supper together after the meetings.)

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SATURDAY, September 30, 2006

Welcome and Introductions
Saturday, 8:30 a.m.
Room 115
Richard Gill, 2006 EXPO Group Chair, Blue Valley High School, Stilwell, KS

SESSION 7 – Invited Address
Saturday, 8:30 a.m. – 9:50 a.m.
Room 115

Using Flash Applets for the Constructivist Teaching of Mathematical Proof
Doug Ensley
Shippensburg University, Shippensburg, PA
http://www.ship.edu/~deensl/

The basic tenet of constructivism is that people construct their own understanding of concepts through their life experiences. This philosophy is commonplace in innovative K-12 curricula, and technology has allowed it to be extended into many high school and college courses. This presentation will focus on the recent development of material designed to enhance the learning of mathematical proof for freshman discrete mathematics students through the application of the constructivist philosophy. The primary medium for these materials is *Macromedia Flash*. Links to tutorials for Flash programming and reusable *Flash* objects will also be shared.

Door prizes will be awarded directly following Doug Ensley's address.

SESSION 8
Saturday,
10:00 a.m. – 10:45 a.m. for 8C and 8D.
10:00 a.m. – 11:45 a.m. for 8A and 8B

8A. **COMMERCIAL DEMONSTRATION and WORKSHOP**
Room 203 *The Networked Classroom: The TI-Navigator System*[TM]*, Graphing Calculators, and Students*
10:00 a.m. – 11:45 a.m.
David Young, a T^3 (Teachers Teaching with Technology) instructor
Fayetteville High School, Fayetteville, AR
This session will use some of TI standards-based activities and the TI-83+/TI-84 to investigate traditional and alternative algebraic and geometry topics. Participants will learn what is new at TI and will receive a CD with over 300 activities. Try out some of the newest APPS, such as *Cabri Jr*[TM], *EasyData*, and *NavNet*. This will give you an opportunity to see the TI Navigator[TM] system in action and its potential. The *TI Navigator* system creates a wireless network between each student's *TI-83/84* graphing calculator and a teacher's PC. Teacher participants can be at any experience level with graphing calculators and grade level from middle to high school.
Presider: Brian Hollenbeck, Emporia State University, Emporia, KS

8B. ***WORKSHOP***

Room 205 ***Using Microsoft Excel in the Mathematics Classroom (Algebra, Precalculus, Calculus, and Statistics)***

10:00 a.m. – 11:45 a.m.

Uwe Conrad, Cowley County Community College – Southside Center, Wichita, KS

In this workshop I will cover *Excel* features for use in the algebra sequence including but not limited to finding common factors and devisors, calculating polynomial coefficients using binomial expansion, as well as matrix multiplication and inverses. I will cover techniques for using scroll bars to manipulate (linear, quadratic and cubic) graphs of polynomial as well as trigonometric functions (examining effects on changes of amplitude and period). For statistical purposes I will cover random number generation, rank and percentile, histograms, correlation, ANOVA, descriptive statistics, and graphing of standard vs. non-standard normal curves. I will provide detailed handouts with instructions!

Presider: Carl Anderson, Johnson County Community College, Overland Park, KS

8C. ***Blackboard®, Smartboard®, and Respondus® Quizzes in a Face to Face Class***

Room 302 10:00 a.m. – 10:45 a.m.

Martha Haehl, Metropolitan Community College – Penn Valley, Kansas City, MO

The presenter uses *Smartboard®* and live Internet connections in her face to face classes. She will show samples of online (*Respondus*)® quiz questions that are designed to test and correct common student misconceptions. Other quiz questions require students to identify the result of taking particular procedural step. The presenter will show how *Smartboard®* can be used as a whiteboard with the added feature of importing items from an electronic document that can then be posted for student reference on *Blackboard®*. She will also show examples how an in-class project can be enhanced with live Internet access.

Presider: Qiang Shi, Emporia State University, Emporia, KS

8D. ***COMMERCIAL DEMONSTRATION***

Room 306 ***How to Motivate Students By Using Software: Hawkes Learning Systems***

10:00 a.m. – 10:45 a.m.

Emily Omlor, Hawkes Learning Systems, Charleston, SC

The presentation concentrates on the benefits of using interactive software in teaching and learning mathematics. The presentation will begin with a demonstration of the *Hawkes Learning Systems* student software, online grade book and test generator. Features of the software that promote grade improvement and motivate students will be explored, including helpful feedback provided by software and mastery based homework. The presentation will conclude with the results of a controlled study comparing grade improvement among classes using *Hawkes Learning Systems* software, a competitor's software, and without the use of supplemental software. (The software license never expires!)

Presider: Joe Yanik, Emporia State University, Emporia, KS

SESSION 9

Saturday, 11:00 a.m. – 11:45 a.m.

9A. ***Flash Tools for Graph Theory***

Room 115 **Doug Ensley, Shippensburg University, Shippensburg, PA**

This presentation will focus on tools that allow an instructor to create customized interactive graph theory problems delivered on the web (via *Flash*) with no programming required. The activities include finding Eulerian circuits, exploring the planarity of graphs, and determining if two graphs are isomorphic. The instructor needs only the expertise of posting

files on the web. Complete documentation and links to the relevant (free) software will be provided.
Presider: Andy Bennett, Kansas State University, Manhattan, KS

9B.　　　　　　　　　***Online Practice Quizzes Using Blackboard***
Room 302　　　　**Jeffrey Hurn, Highland Community College, Highland, KS**
This talk is a continuation of the speaker's successful talk at the 2005 EXPO about online practice quizzes, this time to include an actual online demonstration of the capabilities of *Blackboard.com*.   The speaker's research about the effectiveness of online practice quizzes, computer-based assessment in the learning of algebra, the use of Adult Learning Theory in mathematics education, and best practices for utilizing online assessment will be briefly summarized. However, the lion's share of the speaker's time will be spent on what the 2005 presentation attendees said that they wanted to see: How to use *Blackboard* to deliver online practice quizzes that feature corrective feedback and dynamic measures to help students improve their algebraic skills prior to in-class assessment. Examples of effective practices will be explored. The audience will be encouraged to ask any questions related to online practice quizzing and the designing and delivering of innovative assessment methods, to take the No Child Left Behind high-stakes testing era on aggressively and with success.
Presider: Uwe Conrad, Cowley County Community College, Wichita, KS

9C.　　　　　　　　　***A Project for Probability and Statistics Using Maple and Excel***
Room 306　　　　**Brian Hollenbeck, Emporia State University, Emporia, KS**
Many games can be analyzed through a combination of probability theory, statistics, and simulation. We will discuss a project for a Probability and Statistics class that analyzes strategies for a simple dice game using these techniques with the aid of *Maple* and *Excel*. This project gave students the opportunity to reinforce their understanding of expected value, sampling distributions, hypothesis testing, counting techniques, and statistical methods involving proportions and means. The analysis yielded some interesting and surprising results. The goal of the game is to reach a predetermined score in as few turns as possible. However, the optimal strategy did not always coincide with the strategy that maximized expected value. We will discuss how the optimal strategy is a function of the score needed to win as well as the number of players.
Presider: Qiang Shi, Emporia State University, Emporia, KS

LUNCH
Saturday, 11:45 a.m. – 1:00 p.m. in Massman Hall

SESSION 10
Saturday,
1:00 p.m – 1:45 p.m. for 10A, 10B, and 10C.
1:00 p.m. – 2:45 p.m. for 10D
10A.　　　　　　　　***A Course on Technology for High School Mathematics Teachers:***
Room 125　　　　***Technology That We Need to Know, but Nobody Ever Teaches Us***
　　　　　　　　　　1:00 – 1:45 p.m.
　　　　　　　　　　Joe Yanik, Emporia State University, Emporia, KS

At Emporia State University we have taught a short summer course designed to acquaint high school mathematics teachers with the technology that they can use to improve their teaching of mathematics. In addition to the obvious technologies such as graphing calculators, *Geometer's Sketchpad* and computer algebra systems, we also cover mathematical word processing and the creation of mathematical illustrations using drawing programs. The talk will describe the course and solicit input from the audience about what

other topics would be appropriate for such a course. Take-home tutorials from the course will be provided to the audience.

Presider: Libby Corriston, Johnson County Community College, Overland Park, KS

10B.
Room 203

Developing Mathematica Notebooks That Are Easy for Students to Use
1:00 – 1:45 p.m.
Nora Strasser, Friends University, Wichita, KS
Mathematica is a sophisticated computer algebra package and computer language that many students find difficult to use, because of the need for correct syntax. Excessive classroom time can be spent teaching correct syntax and finding syntax errors. Files called Notebooks, that contain both descriptive information and executable statements, can be used to deliver *Mathematica* to students. A well-designed *Mathematica* notebook should be easy for students to use and will minimize the time spent teaching and correcting syntax.
The use of palettes (menus of *Mathematica* commands) eliminates problems with incorrect syntax. Mathematica has several built-in palettes that can be used successfully, but custom designed palettes can be created as well. Custom palettes are easy to design and are easy to use. This talk will address Notebook style and content. Completed notebooks will be available for the participants to examine. Attendees should be familiar with *Mathematica* and know how to run notebooks.
Presider: Keith Brandt, Rockhurst University, Kansas City, MO

10C.
Room 205

A Personal Tutor for Every Student. Is it possible?
Web-based Interactive Tutorial System
1:00 – 1:45 p.m.
Songlin Tian, Central Missouri State University, Warrensburg, MO
Every student deserves personal attention in learning mathematics. Step-by-step learning through examples and exercises helps students to understand hard mathematics topics better. Based on these two beliefs, a web based interactive tutorial system was developed as a team project of my computer science capstone class in Fall 2005-06 at CMSU. The system uses a database to store information, PHP programming language to dynamically generate web pages, and *MathML* to display mathematics expressions in the web pages. In this talk, the web based interactive tutorial system will be presented. The design and the implementation of the system will be briefly discussed. A demonstration of teaching operations on exponential expressions will be given. Also, suggestions will be made as to how to configure the system for a wide range of mathematics topics from elementary to college level.
 Presider: Larry Long, DeVry University, Kansas City, MO

10D.
Room 306

WORKSHOP
Table-free Statistics: Techniques for Analysis of Continuous and Discrete Probability Distributions Using the TI-83/84 Graphing Calculators
1:00 – 2:45 p.m.
Samuel Lynch, Missouri State University, Springfield, MO
Tables found in elementary Statistics texts are a source of confusion for many students. The presenter will graphically illustrate the Continuous Probability Distribution concept. He will then compare calculation of Z-distribution probabilities using a graphing calculator (*TI-83/84*) and using text book tables. He will provide a set of exercises for workshop participants to gain hands-on experience using the calculator. The workshop will include the Discrete Probability Distribution features of TI-83/84 calculator.
Presider: Steve Wilson, Johnson County Community College, Overland Park, KS

www.kcmathtechexpo.org

The 2006 EXPO Group

- **Richard Gill** (2004 – 2006 Chair), rgill@bluevalleyk12.org
  Blue Valley High School, Stilwell, KS

- **Carl Anderson**, (2006 Evaluations) canders33@yahoo.com
  Retired from Johnson County Community College, Overland Park, KS

- **Andy Bennett**, bennett@math.ksu.edu
  Kansas State University, Manhattan, KS

- **Keith Brandt** (2006 Local Site) keith.brandt@rockhurst.edu
  Rockhurst University, Kansas City, MO

- **Libby Corriston** (2006 Publications, 1995 & 1996 Chair), libbyc@jccc.edu
  Johnson County Community College, Overland Park, KS

- **Richard Delaware** (2006 Exhibitors, 1993 & 1994 Chair), delawarer@umkc.edu
  University of Missouri – Kansas City, Kansas City, MO

- **Mayumi Sakata Derendinger** (2006 Publicity), sakatam@william.jewell.edu
  William Jewell College, Liberty, MO

- **Ken Eichman** (2006 Registration, 1997 & 1998 Chair), Ken.Eichman@mcckc.edu
  Longview Community College, Lee's Summit, MO

- **David Ewing** (2006 Special Speaker Contact) ewing@cmsu1.cmsu.edu
  Central Missouri State University, Warrensburg, MO

- **John Koelzer** (2006 Site Coordinator & 2005 Financial Secretary),
  John.Koelzer@rockhurst.edu, Rockhurst University, Kansas City, MO

- **Tamatha Leuschen** (2006 Webmaster)
  Formerly of Pembroke Upper School, and Center High School, Kansas City, MO

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