# MATH: CONQUERED IN CONCORD

# 38TH ANNUAL NEMATYC MEETING AND CONFERENCE

## MARCH 30-31, 2012

LITTLE HALL,
NHTI, CONCORD'S COMMUNITY COLLEGE
CONCORD, NH

NHTI
Concord's Community College

**Friday, March 30**

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|---|---|
| 2:30 - 5:30 | Registration & Refreshments & Vendor Displays Room 112 |
| 3:30 - 4:15 | Presentations |
| 4:30 - 5:15 | Presentations |
| 6:00 - ??? | Evening Event with 'appe-teasers' at Kimball Jenkins Estate |

**Saturday, March 31**

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| 8:00 | Registration continues Room 112 |
| 8:00 - 3:00 | Vendor Displays – visit throughout the day in Room 112 |
| 8:30 | Welcome in Room 114 |
| 9:00 - 9:45 | Presentations |
| 10:00 -10:45 | Presentations |
| 11:00 -11:45 | Presentations |
| 11:45 -12:15 | Vendor Displays |
| 12:00 -2:00 | Lunch- Capitol Commons (same building) Keynote: Herb Gross |
| 2:00 - 2:45 | Presentations |
| 3:00 | Annual Meeting Room 114 |


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NHTI Bookstore
NHTI Student Affairs
Kimball-Jenkins Estate
Constantly Pizza

Special thanks to Pearson Education for Friday Evening Reception Food

# Friday 3:30-4:15pm

**Building Bridges for the Mathematics Student: Leading Them from a State of Concrete Understanding into a World of Abstraction** *Rachel Olson, Mount Ida College* Room 113

In this presentation, we will identify the different forms of bridges that educators and students build in order to connect their prior knowledge to abstract concepts. We will discuss several cognitive principles presented in Why Don't Students Like School? by Daniel T. Willingham and extend these principles into the mathematics classroom. We will consider the effectiveness of building such bridges and uncover how analogies can be used in the learning and teaching of mathematics. This presentation will conclude with a discussion of whether is it possible to successfully use nonmathematical analogous situations to bridge student knowledge and lead students from a state of concrete understanding into a world of abstraction.

**Ready for "New Life" in Developmental Mathematics** *Jim Sullivan, Lori Heymans, Northern Essex Community College* Room 114

Investigate how a community college developed and implemented a new course, Mathematical Literacy for College Students, which provides students with a shorter and more relevant pathway through developmental math. Explore curriculum materials that engage students in meaningful mathematics and quantitative reasoning skills necessary for college, careers, and life.

**Using Technology in a Math Class** *Roberta Kieronski, University of New Hampshire-Manchester* Room 111

We will use technology to teach basic arithmetic to calculus. Come see a document camera and GeoGebra.

**Let's Not Teach Scientific Notation Anymore** *Philip Mahler, Middlesex Community College* Room 224

Scientific notation with 0 <= decimal < 10 was developed in the age of logarithms: tables and slide rule. But we can live without that restriction in the age of calculators and thereby teach our students more useful content. I will review why we needed the restriction in the past, by looking at multiplication using log tables and slide rules, then talk about the more useful "engineering notation", a form of scientific notation.

# Friday 4:30-5:15pm

**Statistics: Events and Repercussions** *Susan McCourt, Bristol Community College* Room 113

Many of us teaching statistics know how to do statistics without knowing about the people, stories and consequences of its development. In this discussion, I will share what I'm learning as I develop a section of Elementary Statistics for Commonwealth Honors Students. The talk will be primarily based on a book by David Salsburg, a former professor and research fellow, The Lady Tasting Tea-How Statistics Revolutionized Science in the Twentieth Century.

**The Adjective/Noun Theme: Or Making All Numbers Whole** *Herb Gross* Room 114

I have developed a way to teach arithmetic and algebra that has elicited many favorable comments both in workshops that I give and in the guestbook on my website (www.adjectivenounmath.com). I will present this idea during this session. This would be helpful to those of us who are concerned about developmental mathematics.

**Using Technology in a Math Class** *Roberta Kieronski, UNH-Manchester (Continuation)* Room 111

**Factoring Trinomials—Why the "ac Method" is Not Just Magic** *David Grinstein, Bunker Hill Community College* Room 224

A rigorous proof that the "ac method" of factoring trinomials always works. The ac method often looks like magic to many College Algebra students, and the reason why it works is not usually in textbooks. This proof is more for the teacher's comfort than the student's. It depends on the unique factorization theorem for integers.

# Saturday 9:00-9:45am

**Making Math Real: A Bottom-Up Approach** *Joe Heise, NHTI Concord's Community College* Room 113

College Unbound, a new, experienced-based learning program at SNHU (Southern New Hampshire University), has added a weekly mathematics seminar in its second semester (Spring, 2012). This talk will present work in progress toward developing a "bottom/up" approach to math teaching vs. the traditional "top/down" methodology. Given that boredom may be our biggest challenge in getting students engaged in mathematical learning, this already successful approach may be a prototype for a new way to change student passivity to activity in the classroom. While the end result of this approach may be to cover the same topics as a traditional Finite Math curriculum, focusing first on student motivation appears to be yielding better retention and understanding than the "here's what you need to learn" method.

**Project ACCCESS: What It Can Do for You** *David Henry, Bristol Community College* Room 114

NEMATYC has sent numerous fellows to AMATYC's Project ACCCESS (Advancing Community College Careers: Education, Scholarship, Service). This program provides significant benefits to educators in their first three years of service. Come hear from a panel of fellows to learn how the program has enhanced their personal and professional lives.

**Normal Probability Plots Using Excel** *Barry Woods, Unity College* Room 111

Following the American Statistical Association paper entitled "Use of the Correlation Coefficient with Normal Probability Plots" by Looney and Gulledge, (February 1985, Vol. 39, No.1, Pages 75-79) we will use Excel to construct and then graph Normal Probability Plots using the equation $p(i) = (i - .375)/(n + .25)$.

**Revitalizing Your Statistics Course** *Kathy Willis, Southern New Hampshire University* Room 221

Do you want to create more energy in your classroom? Are you looking for ideas to engage your students more during class? In this session you will be a participant in activities focusing on descriptive statistics and other topics in an introductory statistics class. There will also be an opportunity for participants to share any activities that they have found to be successful with their own students.

**What, I can't lecture all the time? How Do I "teach"?** *Florence Chambers, Southern Maine Community College* Room 224

This presentation presents some strategies for creating an inviting and interactive classroom environment. The class-room can be a regular classroom or a computer classroom. Participants will be asked to share and brainstorm techniques for engaging students.

**MyMathLab, MyMathLabPlus, MyFoundationsLab & the *NEW* MyMathLab-Knewton® Partnership in Traditional and Non-traditional settings.** *Kevin O'Brien, Pearson Education, Senior Learning Technology Specialist* Room 222

Since 2000, MyMathLab has been used to help college students learn math. In these years MyMathLab has changed and so have the needs of math departments. With the advent of course redesign, readiness boot camp programs, and larger classes, online self tutoring has become a critical part of what students need to succeed. This presentation will cover a quick overview of MyMathLab, concentrating on new features. We'll show examples of how MyMathLab, and its variants, MyMathLabPlus, MyFoundationsLab and the *NEW* MyMathLab - Knewton® partnership, can accommodate readiness programs, traditional lecture setting, and course redesign.

**Making Geometry Visual with Origami** *Ophir Feldman, Wentworth Institute of Technology* Room 214

Let's face it, teaching an elementary college geometry course for design students can easily become a snooze fest. I was looking for a way to make the class a bit more engaging by appealing to these students' creative/artistic side while showing them how to "do mathematics" with their bare hands. I decided to use origami "labs" and, especially, origami Buckyballs to achieve that goal.

# Saturday 10:00-10:45am

**Commercial Presentation** *Jennifer Moore, Education Courseware Specialist, HAWKES* Room 113

**Course Redesign: What Works** *David Henry, Bristol Community College* Room 114

Many two-year and four-year institutions have embarked on redesigning their developmental math instruction to help students achieve success and sometimes move at a more rapid rate through the use of technology. Some colleges have seen better results than others, so if you are interested in this method of instruction it is best to get off on the right foot. A panel will discuss how to successfully, and unsuccessfully, plan and implement course redesign projects and go over results.

**Normal Probability Plots Using Excel** *Barry Woods, Unity College* (Continuation) Room 111

**Imprecise P value versus Precise P value, How to Accurately Measure the Strength of Evidence**
*Eiki Satake, Emerson College* Room 221

Although the imprecise p value remains popular and a most widely taught quantitative tool for statistical inference in the introductory and intermediate level of statistics courses, the most distracting fact is that the imprecise p value very often overstates the amount of evidence against the null hypothesis and tends to draw an inaccurate conclusion because of the complex definition of it. The main scope of this seminar is to introduce the precise p value, as an alternative to the imprecise p value, and show the comparison between the two methods. The methods for measuring evidence are greatly emphasized.

**Building Conceptual Understanding Through Exploration - Activities for Elementary Ed Math Students**
*Carol Henry, Middlesex Community College, Rebecca Metcalf, Bridgewater State University* Room 224

In this session we will explore concepts through activities (old favorites, revised activities, and new ones). With each activity we will hold a discussion about how why you would use the activity, what students gain from doing this activity and how the activity and how the activity "fits" the Core Curriculum. Come prepared to play and participate in the discussion!

**GeoGebra for Everyone** *Joseph Manthey, Capital Community College* Room 222

Goegebra is a free dynamic mathematics software package combining the elements of dynamic geometry software (Sketchpad, Cabri, Cinderella) with elements of computer algebra systems (Maple, Mathematica, Maxima). GeoGebra has interactive graphics, algebra and spreadsheet capabilities that can be used to improve the teaching of mathematics from elementary school through the university level. This software package can be used to create demonstrations, facilitate student experimentations, and as an authoring tool for creating images and dynamic applets. In this presentation I will demonstrate the range of GeoGebra via applets suitable for algebra, geometry, trigonometry, statistics, and calculus. GeoGebra for everyone!

**Outcome-based Curriculum and Course Level Assessment** *Lynne DeSantis and Veronica P. Hupper, Ph.D., Hesser College* Room 214

In this presentation, we will discuss the process used by the liberal studies department at Hesser College to develop and use course level outcomes in structuring and updating curriculum. Specifically, we will outline our philosophy for identifying appropriate outcomes for mathematics courses and for developing course materials and assessments based on these outcomes. In addition, the tools used for gathering and analyzing course level assessment data will be demonstrated. Preliminary results from our data collection will be presented to illustrate the entire process.

# Saturday 11:00-11:45am

Statway—A New Pathway To and Through College-Level Statistics *Andre Freeman, Capital Community College* Room 113

Statway ™ is a one-year pathway to and through college-level statistics for developmental students. Statway™ concentrates on statistical content with requisite arithmetic and algebraic concepts taught and applied in the context of statistics. The Statway™ pathway is structured especially for non-STEM students and is supported by Carnegie Statway™ Networked Improvement Community. Capital Community College is one of four Connecticut community colleges participating in this national initiative. In this workshop, participants will learn about the implementation of Statway™ at Capital Community College, Statway™ design principles, and early results.

Course Redesign: What Works *David Henry, Bristol Community College* (Continuation) Room 114

Coordinating Multi-Section Mathematics Courses *Magdalena Luca, Mass College of Pharmacy & Health Sci* Room 111

As Coordinator of Mathematics, I develop, implement and supervise all aspects of teaching multi-section mathematics courses. This presentation will show a series of techniques used to teach such courses at the Massachusetts College of Pharmacy and Health Sciences. Most methods are common to all courses taught (Algebra, Precalculus, Calculus I and II, and Statistics), however Statistics requires additional measures to be considered. Multi-section courses have a common syllabus, textbook and topics taught. I will describe some effective usage of technology and supplementary materials used in the courses' lectures. In contrast, I will also show what does not work or is difficult to put into practice

Imprecise P value versus Precise P value, How to accurately measure the strength of evidence *Eike Satake, Emerson College* (Continuation) Room 221

Open Textbooks *Mary Sullivan, Massasoit Community College* Room 224

Are you looking for a way to reduce textbook costs for your students? Are you interested in customizing course materials for your classes? Open textbooks may be the solution. I will share my experiences using an open textbook. Topics covered: Reasons to consider something other than a traditional textbook; Open licensing vs traditional copyright; Sources of open textbooks; and Steps to open textbook adoption.

Helping Developmental Students Succeed with Online Homework *Dale Dawes, Borough of Manhattan Community College* Room 222

Increasing enrollments and a greater focus on student outcomes can lead to challenges for community colleges, especially if an increased number of developmental students is added to the mix. Dale Dawes from the Borough of Manhattan Community College (NY) will be sharing with you how he uses online homework (Enhanced WebAssign) to help him coordinate student homework over 22 sections of Developmental Math. Dale will also share how the immediate feedback and robust pedagogy of Enhanced WebAssign has improved his student's success rates and retention. In addition, learn how Enhanced WebAssign can be used to facilitate self-paced, modular, and completely online offerings in Developmental Math. Sponsored by Cengage.

# Saturday 2:00-2:45pm

**A Conversation with Herb Gross** *Herb Gross* Room 113

There are always those who want to talk with Herb after his presentations. This will be scheduled to follow Herb's lunchtime talk, to permit some time for those conversations.

**Magic Squares And Their Application In Magic Tricks** *Prof. Michael John, Wentworth Institute of Technology* Room 114

My proposed talk is on Magic Squares and their application to magic tricks. The size of the magic squares will be limited to the 4x4 variety. No attempt will be made as to how the Magic Squares are constructed, but simply as a way to motivate students in elementary college mathematics courses.

**CC-OLI Statistics: Free, Research-based Online Learning Materials** *Mary Moynihan, Cape Cod Community College* Room 111

The Community College Open Learning Initiative builds free web-based courses hosted at Carnegie Mellon that use an intelligent tutor, virtual laboratories, simulations, and frequent feedback. Work through some of the statistics tutors that can be used by any faculty whether you adopt the course materials or not. Investigate the research feedback loops that use data gathered from embedded assessments to provide feedback to students, instructors, course designers, and learning science researchers. Note: The materials are online, the course doesn't have to be. I'm using the online textbook in a fully f2f class.

**Math Education - Making the Transition from High School to College and Career** *Robert Bragdon, Nashua Community College* Room 221

65-70% of students planning to enter community colleges are unprepared to enroll in college level mathematics. Nationally, 40% of students entering four year colleges and universities are also unprepared. Beyond the cost in time, tuition, and discouragement, nearly two thirds of these students who require one or two remedial math courses fail to earn degrees. The NH Mathematics Learning Community has developed a two-tiered approach to strengthening math preparedness for middle-achieving high school seniors. The strategy relies heavily on applied problem solving and critical thinking skills. The Mathematics Learning Community is a joint venture between high schools and NH community colleges.

**YouTube Videos with a Webcam or Tablet** *Denise Robichaud, Quinsigamond Community College* Room 224

Do you want to make videos for your students but aren't sure how to get started? Come see a live demo of three easy and inexpensive ways to make your YouTube videos. The presentation will include information on recommended hardware and software, how to link your students to your videos, and a sneak peek at the QCC Math Department's new YouTube channel.

**Come Find Out What AMATYC is All About** *Jane Tanner, AMATYC Regional Vice President; Jack Keating, Past AMATYC Regional Vice President, Massasoit Community College; Philip Mahler, Past AMATYC President, Middlesex Community College* Room 222

Come find out what AMATYC has to offer you! Learn about AMATYC from people who are taking an active role within the organization. Plan on joining together with other colleagues who are concerned about two-year college mathematics across this country and Canada.

**Fibonacci Win Points: Baseball Statistics Conquered at NEMATYC** *Steve Krevisky, Middlesex Community College (CT)* Room 214

Bill James developed a system to evaluate a baseball pitchers' Hall of Fame chances, related to Fibonacci numbers. In this presentation we discuss what this formula is, what pitchers benefit from this system, and how the method could be improved. Intended for teachers of algebra, statistics, and qualitative literacy.