



NEMATYC NEWS



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Newsletter of the New England Mathematical Association of Two-Year Colleges

Spring, 2014

On the Road with Math

NEMATYC 2014

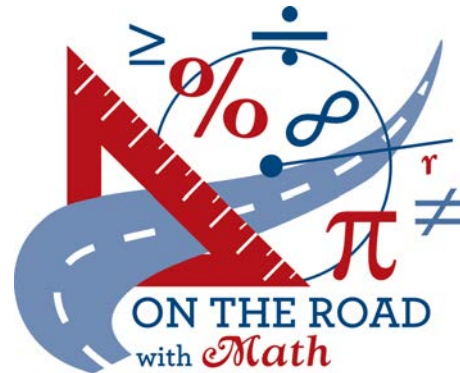
40th Annual Meeting

Friday and Saturday, April 4-5, 2014

Maria Arambel, Dora Ottariano, Co-chairs

Middlesex Community College

33 Kearney Road
Lowell, MA 01852



NEMATYC is celebrating its 40th anniversary! To celebrate and to encourage attendance and new memberships, the fees have been reduced for this conference. For full-time faculty, the early registration fee is \$50, for adjuncts/students it is \$25.

There will be **No Charge** for current **ACCESS Fellows**, and **ALL first time attendees (one year NEMATYC membership included!)**. (And provided you are an early registrant.)



PRESIDENT'S MESSAGE MEREDITH WATTS



Welcome back for a spring semester that started like a lion! So much cold and snow in such a short period of time. Thankfully we're heading toward spring instead of away from it. We're also heading toward state-wide changes in Massachusetts. The MA Board of Higher Education has voted to encourage all public campuses to aggressively look at changing developmental mathematics. This includes the use of high school GPA in lieu of math placement tests and for each school to consider new math sequences that are tailored to what students need in their majors.

This sort of realignment of curricula has been a topic of conversation nationally for a few years now. The Carnegie Foundation for the Advancement of Teaching created two such models: Statway and Quantway.

These models incorporate statistics and quantitative reasoning into the developmental math sequence, preparing

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AMATYC NORTHEAST REGION VICE PRESIDENT ERNIE DANFORTH



I would like to introduce myself to you as your new Northeast Vice President of the American Mathematical Association of Two-Year colleges (AMATYC). My name is **Ernie Danforth** and I am a retired mathematics professor at Corning Community College in Corning, New York. I taught mathematics at CCC for 34 years. I have been an AMATYC member for 25 years. I am a past committee chair and have served on the program committee that reviews all of the speaker proposals for the annual AMATYC conference for many years.

Speaking of the annual conference, the 40th Annual AMATYC Conference will take place in Nashville, Tennessee on November 13-16, 2014. Presiders for sessions are also needed, so if you are interested please volunteer online at <http://proposals.mccc.us/>. I hope to see many of you in Nashville in November.

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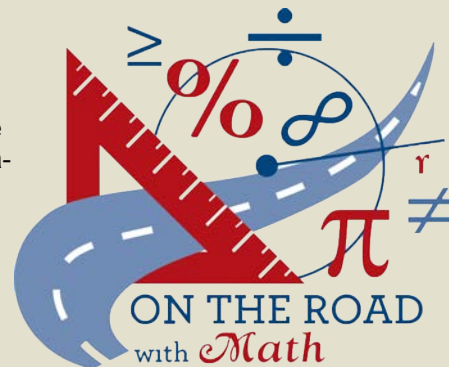
40th NEMATYC Conference: On the Road with Math

April 4th and 5th, 2014

Middlesex Community College, Lowell, MA



We are happy to announce that Middlesex Community College will be hosting the 40th NEMATYC Conference on April 4th and 5th, 2014 at its Lowell, Massachusetts campus. The theme of this year's conference is "On the Road with Math." National trends in Mathematics education place a strong emphasis on acceleration through developmental math and providing students with multiple pathways (roads) that will prepare them more fully for their chosen careers or future studies. A "one path fits all" approach for all students is no longer appropriate.



We encourage you to share your experiences in meeting the challenges presented by these changes. What new classroom models are you and your colleagues currently developing: acceleration through modularization; acceleration through targeted interventions; contextualized delivery; co-requisite support models; flipped classrooms; others? What difficulties have you encountered in implementation? Or maybe you are just getting started. Wherever you are in your journey on the road, the opportunity to collaborate and discuss with your peers at the annual NEMATYC conference is always an enjoyable and worthwhile experience.



Register at the Hotel at

<https://bookings.ihotelier.com/bookings.jsp?groupID=1125600&hotelID=73933>

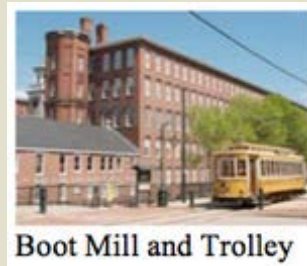
What better place to start our journey than Jack Kerouac's Lowell. Our campus is centrally located and many museums, restaurants, theaters, and parks are within walking distance. A block of rooms has been reserved at the UMass Lowell Inn and Conference Center for only \$99 for Friday night. Stay there on Saturday, too, for the same rate and explore the city after the conference is over. The hotel offers free parking. (Hotel, parking and conference are all contiguous and you can easily walk to the Lowell national park and museums.) Use the link above to make your reservation by March 4.



Kerouac Park

After the Friday afternoon presentations, we will go on a trolley tour of Lowell, followed by a visit to the Boott Mills Museum

and appetizers and drinks at the Old Court Restaurant. This event is being sponsored by PEARSON Publishing. On both Friday and Saturday, we will have many interesting and informative presentations. We will welcome Professor **Steve Pennell**, from UMass Lowell, who will be our keynote speaker at Saturday's lunch. Professor Pennell, in keeping with the conference theme, will be speaking about Hungarian mathematician, Paul Erdős. Erdős did not have a home and traveled from place to place, visiting, working, and writing with other mathematicians. Do you know someone who has an Erdős number?



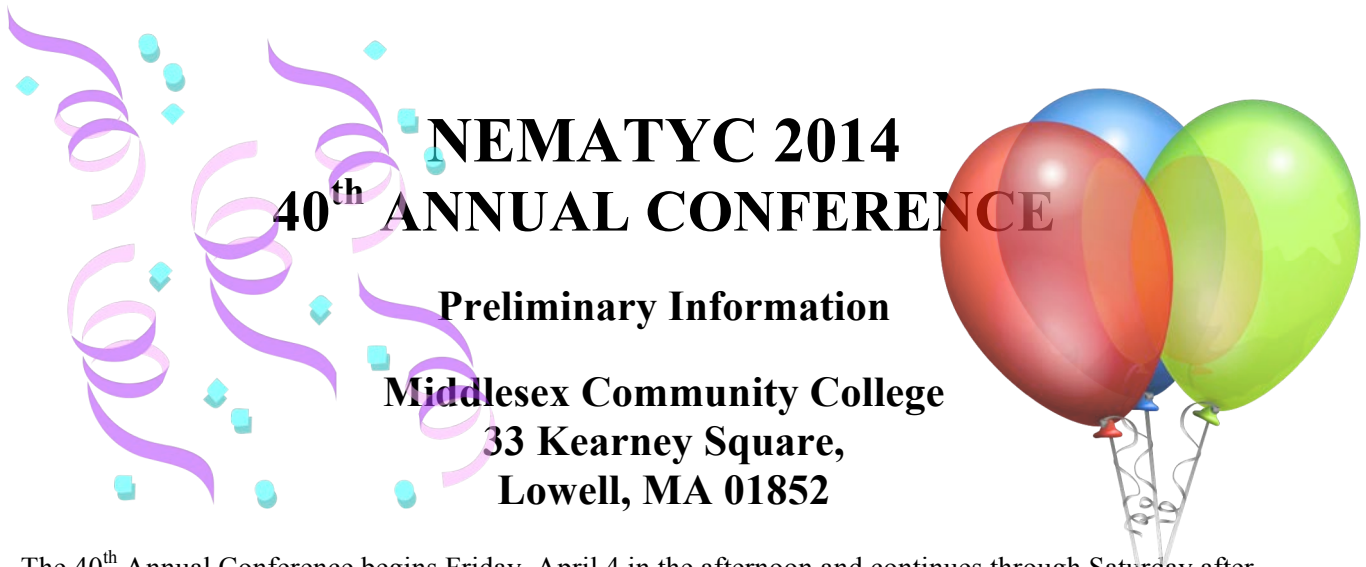
Boott Mill and Trolley

Get your bags ready, mark your calendars, and prepare for a weekend of fun and learning!

Thank you,

Maria F. Arambel & Dora Ottariano, Co-Chairs

REGISTER TODAY!



NEMATYC 2014 40th ANNUAL CONFERENCE

Preliminary Information

**Middlesex Community College
33 Kearney Square,
Lowell, MA 01852**

The 40th Annual Conference begins Friday, April 4 in the afternoon and continues through Saturday afternoon April 5. This year your registration fee includes the Friday night event! To celebrate the 40th NEMATYC Conference and to encourage new memberships, the registration fees have been reduced.

FRIDAY NIGHT EVENT (Sponsored by Pearson Publishing): Join us for a trolley tour of the Lowell National Historic Park (LNHP) and a visit to the Boott Cotton Mills Museum. Then, relax with colleagues over appetizers and spirits at the Old Court in Downtown Lowell, just a few yards from our Conference hotel.

FRIDAY Highlights

2:30 pm to 4:30 pm – Registration
3:15 pm – Presentations begin
5:30 pm to 9:00 pm – Tour of the LNHP and
food at Old Court

SATURDAY Highlights

7:30 am to 9:00 am – Continental Breakfast
8:00 am to 2:00 pm – Registration
8:20 am – Welcome & Opening Remarks
9:00 am – Presentations begin
12:15 pm – Lunch and speaker presentation.

LOCAL ACCOMMODATIONS AND REGISTRATION

HOTEL

The UML Inn and Conference Center is adjacent to MCC's Lowell Campus. Book your room by March 4th to pay the discount rate of \$99. Please call 877-886-5422 (Group Code is 1125600) or go to <https://bookings.ihotelier.com/bookings.jsp?groupID=1125600&hotelID=73933> to book online.

PARKING INFORMATION FOR HOTEL GUESTS

Accessing the Inn & Conference Center requires a few simple steps.

- As you enter the driveway from the corner of Warren Street and George Street proceed to the drop off area under the porte-cochere.
- Enter the Inn's lobby using the front doors to the Front Desk on the left side. Please be prepared with your photo ID and major credit card.
- Once checked in, you will be given a parking pass. Please be sure this is displayed on the driver's side dash board for the length of your stay.
- If there are no spots available in the surface lot during your stay, you may use the city owned Lower Locks Parking Garage. The entrance is just off Warren Street, to the left exiting the driveway. Overnight rooms include complimentary parking for one automobile. Please bring your parking ticket to the front desk for validation.

DIRECTIONS

For your GPS or Web Directions

- **Hotel:** 50 Warren Street, Lowell, MA 01852
- **College:** 33 Kearney Square, Lowell, MA 01852
- **Parking:**



- **Hotel Guest:** See previous paragraphs
- **Conference:** Lower Locks Garage, 90 Warren St., Lowell, MA 01852
(This is adjacent to the hotel and the college. TAKE YOUR TICKET WITH YOU and validate it at the conference.)

REGISTRATION

A registration form is required of all attendees and presenters.

You can register online by clicking on the link <http://www.nematyc.org/registration-page.html> or filling out the registration form in this newsletter.

PAYMENT

Remember, even if you qualify for a free registration, you must register per the instructions above. You can pay by check or credit card. Paying by credit card must be through the college. See the registration form on page 8 for rates.

- By check made out to Middlesex Community College, send to Prof. Maria Arambel, Middlesex Community College, 33 Kearney Square, Lowell, MA 01852
- By credit card, please call the college at 1-800-818-3434 Monday through Friday, 8:30am - 8:30pm. Ask to register for the NEMATYC Conference and choose one of the following:
 - If you are a full-time faculty member: CRN 16738 Course NC 1020 Section 80 (\$50)
 - If you are an adjunct or student: CRN 16739 Course NC 1020 Section 81 (\$25)

THE PROGRAM

There will be commercial presentations and publisher exhibits and a Saturday lunch talk about Paul Erdős by Steve Pennell of UMass-Lowell.

Here is a sample of scheduled presentations:

Acceleration Through Hybridization Magdalena Luca, MCPHS University

Every fall semester I teach Biostatistics, a second course in the statistics sequence required for Public Health and Premed students. And every semester I encounter the same problem: students either forgot most of the statistics they have learned in the first course, or, even worse, they were not properly taught statistics. To improve and accelerate students' basic statistical knowledge, I have developed a hybrid course. In this presentation I will address effective hybrid teaching techniques. More specifically, I will describe what topics, assignments, and assessment methods are appropriate to be offered online instead of being presented in class.

An Alternative Teaching Model of Teaching Conditional Probabilities: Truth Table Eiki Satake, Emerson College

This paper demonstrates how the truth table of elementary mathematical logic can be used to teach the derivations of complex conditional probabilities. As evidenced by many literatures, statistical novices have difficulties in grasping the concept of conditional probability because of such complexities as (1) how to distinguish between conditional and unconditional statements, (2) how the sample space can be identified and defined, and (3) how the formula can be applied for calculation. The author invented an alternative approach called Truth Table Method to not only simplify the computation process but also help students understand underlying logic behind the conditional probability.

Asking good questions to promote inquiry and mathematical conversations.

Volker Ecke, Westfield State University

In this interactive workshop participants will consider the different kinds of questions a professor could ask in a mathematical conversation. Good questions promote deeper thinking, clarify students reasoning, reveal contradictions, or stimulate participation and discussion among students. Conversations can take place as a whole class, in a smaller group or just between the professor and the student. Each situation requires slightly different skill sets.

Our work on the use of questions has grown out of a broader effort on promoting student inquiry. At Westfield State University we successfully use inquiry based materials and techniques to engage students in mathematics. In our project Discovering the Art of Mathematics (www.artofmathematics.org), we are now developing teacher materials and offering workshops making our best practices explicit through vignettes, videos and reflections on our own teaching.

Cape Cod Community College's new nonSTEM Algebra

Mary Kehoe Moynihan, Cape Cod CC

What should the prerequisite to a nonSTEM college level mathematics course look like? CCCC has reworked our entire developmental mathematics and college level mathematics curriculum. One of our new courses is a 3 credit, 5 hour developmental level Algebra for nonSTEM course which replaces our Elementary and Intermediate Algebra courses. I piloted the Intermediate Algebra level material during Spring 2013 and Fall 2013. Mary E. Sullivan and I developed the course during the summer and fall semesters and we're offering it for the first time in Spring 2014. We believe that the new course is a substantial change from our traditional algebra courses.

Charting Your Way to Multiplying and Factoring Polynomials

Elizabeth Reith, Great Bay CC

Help your students who are struggling with polynomial operations. Learn a great method where they can multiply any size polynomial without the common problem of dropping terms. Also, instead of the tedious "Trial and Error", learn a different technique that works for factoring trinomials. Supporting activities will help reinforce the transition from the concrete manipulations to the abstract pencil and paper.

Classroom Management: How to eliminate unruly behavior and complete your curriculum

Howard Coffman

Classroom management has never been easier and more effective. Learn proven ways to raise the level your students behavior such that it exceeds your wildest expectations.

This session will demonstrate practical methods that guide your students to a new level of learning you never thought possible. Your students will finally be able to focus on the learning objectives and no longer be distracted by disciplinary drama and delay.

The Convolution Summation: A Nifty Accounting Technique

Robert Cournoyer, Wentworth Institute of Technology

The concept of convolution is used in the engineering world. In my own words it's a nifty accounting technique. It keeps track of the past inputs as well as the present inputs of a system. Convolution comes in integral form, the convolution integral, and in summation form, the convolution summation. The convolution summation can be explored by precalculus students who have studied functions, function notation, graphing functions, horizontal shifting of graphs, and the reflecting of graphs about a vertical line.

I will present a sequence of two Laboratory Investigations in which students develop and learn to appreciate a convolution summation. I will then present a third Laboratory Investigation called Medication Dosing. The concept of half-life is used in this Laboratory Investigation.

Developmental Mathematics at MWCC: Reduce, Differentiate and Integrate

Yoav Elinevsky, Mt Wachusett CC

We are addressing two major issues.

1. The large number of students who need Developmental Mathematics
2. The small number of students who start in Developmental Mathematics and are able to complete a college level math course.

We:

- Reduce the number of students that are placed in our Developmental Mathematics courses by teaching Developmental Mathematics at the HS to seniors.
- Differentiate between STEM majors and nonSTEM majors by offering two different developmental math pathways – one which is heavy in Algebra and one which is not.
- Integrate some algebra into entry level college math courses such as Statistics and Survey of Mathematics.

Embracing Disruption: Transforming Developmental Math Programs with Khan Academy **Tim O'Connor, New England Board of Higher Education**

One of the key findings of the New England Board of Higher Education's Davis Educational Foundation Summit on Costs in Higher Education is that "The confluence of rising prices for students and concerns about quality have increasingly entered public discourse and now promise to prompt regulatory action from government and change cultural attitudes toward higher education."

The NEBHE Developmental Math Demonstration Project with Khan Academy directly addresses this concern on at least three levels:

- Instructional Costs and Student Savings
- Time and Competency – Based Learning
- Quality and Real – Time Student Progress Data

Join us for a tour of Khan Academy and the Developmental Math Demonstration Project. We'll show you what we're learning and how our discoveries can positively impact you and your students

Homogeneity of Variance Tests Using Excel **Barry Woods, Unity College**

While Minitab lists two (2) separate Homogeneity of Variance (HOV) tests, Bartlett's and Levene, and JMP lists four (4) HOV tests, O'Brien, Brown-Forsythe, Levene, and Bartlett, Excel lists none. However, Excel will be used to calculate and demonstrate two powerful, commonly used HOV tests; Levene's test and the Brown-Forsythe test.

Math Placement and Support Strategies

Mary Rayappan, Justice-Taylor Baker, Middlesex Community College (CT)

In response to PA 12-40, signed by CT Governor Malloy, that became effective July 1, 2012, we have been constructing several strategies for students who have skills gaps and do not get placed in a college level math course. A few such initiatives are fast track math workshops, embedded courses, free supplemental resources in classes, like Khan Academy and in-house videos, and traditional courses in split classrooms with supplemental instructors. Key aspects of these initiatives along with available data will be presented.

Mathematical Dictionaries: Reducing the Language Barrier in Mathematics

Rachel Olson, Mount Ida, Endicott & Mass Bay Community Colleges

Despite increased access to mathematics via technological advances and educational research, students continue to struggle with becoming independent mathematical learners. This is, in part, due to challenges in decoding the language of mathematics itself; understanding this language is a crucial part of a student's interaction with mathematics. Students must discover meaning in phrases, such as solve versus simplify and equation versus expression. By exploring these very subtleties, students found their own conceptual understanding of mathematics. The goal of this workshop is to start a discussion on the role that understanding the language of mathematics plays in learning mathematics. We will look at common directive words used in math instruction and attempt to assign meaning.

Multiple Pathways on the Horizon for Developmental and College Mathematics

Kim Ward, Eastern Connecticut State University

As a result of the Connecticut Public Act 1240 Law, the offering of remedial/developmental education courses at Community Colleges and State Universities in Connecticut, must fit into the following levels: Intensive, Embedded and College. Therefore, commencing summer 2014 Eastern will offer multiple pathways to developmental and college mathematics courses. Only time will truly reveal whether this approach will better provide students with the mathematical skills needed for success in their current math course and strengthen basic math readiness skills for future coursework in mathematics and subjects requiring quantitative skills.

On The Road (Mathematically) With Red Sox Championship Teams!

Steve Krevisky, Middlesex Community College (CT)

Since 2004, the Red Sox have won 3 World series. Is this a golden age for the Beantowners? How does the current version stack up against previous series winners? What are the strongest Sox teams of all time? Using the Pythagorean Projection, Slugging Average, and many other statistical measures, we look at the many titles of the Bosox, and also examine the careers of such famous players as Ted Williams, Tris Speaker, Cy Young, Yaz, Pedro, Manny, Big Papi and others. Intended for teachers of Statistics, Algebra, and Quantitative Literacy.

Shape up Your Algebra

Natalya Vinogradova, Plymouth State University

Do your students struggle with algebraic formulas and procedures? Let's get together to explore how geometric shapes can help. By moving rectangles and squares, we will help our students attach meaning to algebraic symbols. Visualization can and should be a useful tool in learning mathematics. Any tool requires skillful handling, and so does visualization. We should teach our students how to use it flexibly and efficiently. You will be able to use these strategies and activities in your next math class!

The Statistics Connection

Joseph Manthey, University of Saint Joseph

Discussion boards are a central feature of many online courses and are used to develop communication and critical thinking skills. However, discussion boards can also be used to encourage students to see the big picture. In this presentation, I will share examples of discussion questions used in an online statistics course. These examples illustrate the connections between statistics concepts and larger societal issues such as income inequality, poverty, energy and health care. Several compelling examples of the consequences of statistical illiteracy will also be included.

Teaching a Hybrid Mathematics Class

Gail St. Jacques, Johnson Wales University

Hybrid courses (also referred to as a blended classroom) truly represent the best of both worlds, that is combining face to face classes with online learning. In order for a hybrid course to be successful, a complete course redesign is necessary.

The presentation will focus on how the presenter designed and developed her hybrid class, her experience from having taught it twice and lessons learned.

Vision Project update – A discussion of the recent Massachusetts Board of Higher Education action to adopt the developmental math task force recommendations

Bob Cantin, MassBay CC, Dave Henry, Bristol CC

The Vision Project, which is funded by The Boston Foundation, is relatively new, but changes are coming to the Massachusetts community college system with respect to placement, developmental courses, meta-majors and more. We will discuss the recommendations from the report submitted by the project's Task Force on Transforming Developmental Math Education to the Massachusetts Board of Higher Education, effects this is having and will have, and try to develop an understanding of the road ahead for our profession.

WHERE WILL I USE THIS? – INVITED PRESENTATIONS FROM COLLEAGUES FROM OTHER DISCIPLINES

Elementary Math: It's Not So Elementary!

Linda Dart-Kathios & Carol Henry, MCC

With the focus on STEM programs it is imperative that students gain a deep understanding and an appreciation of the beauty of mathematics. This needs to start at the earliest level and elementary teachers can have the most profound affect on students in laying this foundation.

This panel discussion will include pre-service teachers currently taking one of their required teacher mathematics courses here at Middlesex. They will discuss what they have learned this semester that has helped give them a better understanding, what they know now they wished they knew then, and techniques that would be helpful in any math class. Come hear what our students are saying about the math challenges that they have faced and how a course like this will influence how they will teach math in the early grades.

The Importance of Math in the Criminal Justice Field

Heloisa DaCunha, Middlesex Community College

Practical Applications of Math in Health Care

Cassie Del Checcolo & Katherine Gehly

Have you ever heard a student ask, "When will I ever use math in real life?" Find out how nurses rely on math skills in the healthcare setting. This presentation will include a discussion of the challenges and rewards of incorporating math into the nursing curriculum through the application of math skills in real life situations and scenarios.

Math in Life (Sciences)

Jean Cremins, Middlesex Community College

Many students come into A & P with the idea that quantitative reasoning is not going to be necessary.

WRONG!! Concepts such as pH and surface area are just two examples that are encountered throughout both A & P I and II. In this session, we will explore some activities that create lasting quantitative comprehension (hopefully) for our A & P students.

Conference Registration Form

New England Mathematical Association of Two Year Colleges

40th Annual Meeting – Friday & Saturday, April 4 – 5, 2014

Middlesex Community College

33 Kearney Sq Lowell MA 01852

Early Registration Discount Date: Wednesday, March 26, 2014

You can also register at: <http://www.NEMATYC.org>

NAME _____

Preferred Mailing Address _____

Home ___ College ___ _____

Phone _____ Email _____

Institution/Affiliation _____

Lowered and Free Rates are in celebration of NEMATYC's 40th Anniversary.

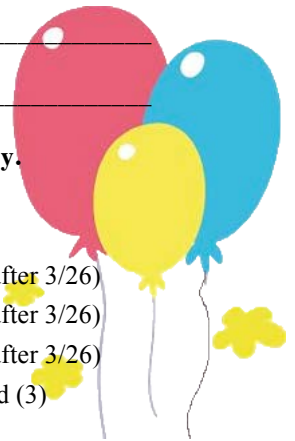
Which activities do you plan to attend?

- Friday Afternoon Sessions
- Friday Evening Social *
- Saturday Morning Sessions
- Saturday Lunch
- Saturday Afternoon Sessions

* Sponsored by Pearson Publishing

Registration Type (1)

- | | |
|---|------------------------|
| <input type="checkbox"/> Full-Time Faculty | \$50 (\$60 after 3/26) |
| <input type="checkbox"/> Adjunct Faculty | \$25 (\$30 after 3/26) |
| <input type="checkbox"/> Student | \$25 (\$30 after 3/26) |
| <input type="checkbox"/> Presenter | Fee waived (3) |
| <input type="checkbox"/> ACCESS Fellow | Free (2) |
| <input type="checkbox"/> First Time Full-Time | Free (2) |
| <input type="checkbox"/> First Time Attendee | Free (2) |



(1) Saturday lunch cannot be guaranteed for registrants after March 26

(2) Free, includes 1-year NEMATYC membership

(3) Fee waived for first presenter in multiple presenter sessions

Would you be willing to be a presider? Yes No

Payment

Payment may be made in one of two ways:

1. By check, made out to Middlesex Community College and sent to Maria Arambel, Middlesex Community College, 33 Kearney Square, Lowell, MA 01852 . Please put your name on the check.
2. By credit card, by calling 1-800-818-3434, Monday through Friday, 8:30 a.m. - 8:30 p.m. Ask to register for the NEMATYC Conference and use one of the following:
 - If you are a **full-time faculty member: CRN 16738 Course NC 1020 Section 80 (\$50).**
 - If you are an **adjunct faculty member or student: CRN 16739 Course NC 1020 Section 81 (\$25).**

Questions? Maria Arambel (ArambelM@middlesex.mass.edu) or Dora Ottariano (OttarianoD@middlesex.mass.edu)

Conference Refund Policy: A refund of 100% of your advance registration fees less the dues amount will be given upon receipt of a written request postmarked no later than two weeks prior to the conference. A 50% refund less the dues amount will be given if written request is postmarked within the two weeks prior to the conference. No refunds for non-attendance will be given for requests postmarked after the date of the conference. All requests should be sent to the NEMATYC Conference Chairperson. Refunds will be processed approximately four to six weeks after the conference.

Watts continued

students for Statistics and QR college-level courses. So far, the data has showed students faring better in these major-oriented math tracks than in the traditional, one-size-fits-all, Calculus-focused math sequence. These models also better reflect the population of students heading to community college campuses. Most students don't end up taking or needing Calculus, but all students need to be taught how to think critically with mathematical information. Those students heading into the Calculus sequence would pick up the skills they need in courses specifically geared for them.

But that is just one side of the BHE's recommendations. The other side has to do with students' high school GPA. Many community colleges have some sort of bridge to prepare students for college and potentially developmental math. Some community colleges teach developmental math and give the Accuplacer to high school seniors to ensure they are prepared for college-level math. Others offer workshops or boot camps to prepare them. A conversation that we as community college math instructors need to have is how this will change. It's not the high school math GPA that would bypass the admittedly-imperfect placement test, but a student's overall high school GPA. Is that enough of an indicator of student readiness? How do we keep our curricula relevant and accessible but not lower the academic bar of excellence?

These are conversations I invite you to have at your campuses and across the region at the NEMATYC Conference this April. So come prepared to discuss changes or issues that arise on the road with math!

Danforth continued

If you are not already a member of AMATYC, I would encourage you to consider joining. The Annual AMATYC Conference, a series of webinars and the AMATYC committees offer many opportunities for you to advance your mathematical knowledge and network with your peers across the United States and Canada. In addition, AMATYC members receive the *AMATYC News* and *MathAMATYC Educator* publications during the year. Whether you are a member or not, I encourage you to visit the website at <http://www.amatyc.org/> and become familiar with what AMATYC has to offer.

AMATYC has 9 committees: Developmental Mathematics, Division/Department Issues, Innovative Teaching and Learning, Mathematics for AAS Programs, Statistics, Mathematics Intensive/College Mathematics, Placement/Assessment, Teacher Preparation, and Research in Mathematics Education for Two-Year Colleges. Although the committees meet annually in person at the AMATYC conference, they do most of their work during the year through emails, websites, and Google groups. If one of these areas is of particular interest to you, read



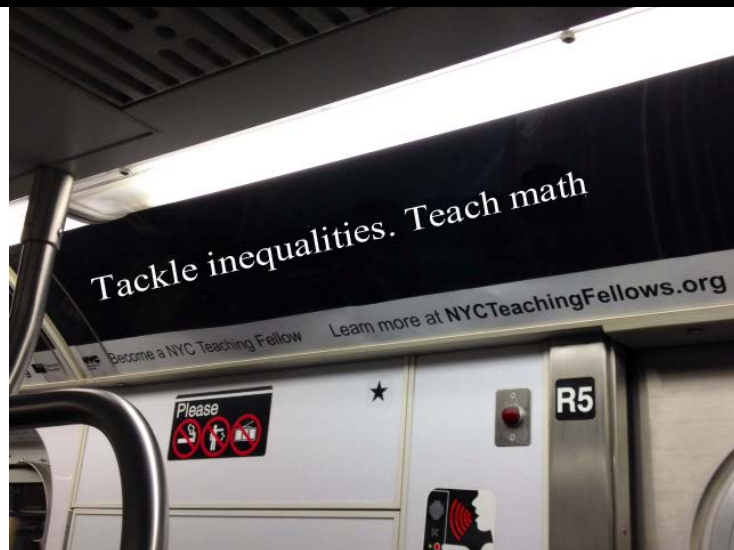
more about the committees and find contact information for the chairperson at this link. <http://www.amatyc.org/committees/> .

One of my responsibilities as NE VP is to visit the affiliates at least once during my two years as VP. At this point in time I am very much looking forward to attending your meeting on April 4 and 5, 2014 at Middlesex Community College in Lowell. There are no conflicts on my schedule at this time and I am looking forward to the opportunity to renew old acquaintances, make new friends and represent you with the Executive Board.

Everything today needs a rubric it seems. In math, of course, we use rubric's cube.



The picture at the right is from the NYC subway. Taken by Maya Elinevsky, daughter of Yoav Elinevsky, MWCC.



NOMINATING COMMITTEE REPORT

The NEMATYC Nominating Committee is pleased to present the following slate of officers for the elections to be held at the business meeting, Saturday, April 5, at the annual conference.

PRESIDENT

Two-Year Term

DAVID HENRY

Dave Henry is an Assistant Professor of Mathematics at Bristol Community College. He received his B.A. in English from the University of Michigan, his M.P.A. from Framingham State University and his M.S. in Mathematics from Salem State University. Prior to higher education, Dave worked as a management consultant and as a sports-writer. He is the course coordinator for Bristol's Math for Elementary Educators sequence, the coordinator of the school's Student Math League and a member of the Course Redesign team for BCC's developmental math sequence.

Dave has been an active member of both AMATYC and NEMATYC. He is currently the Vice President and Student Math League Coordinator of NEMATYC. Previously, Dave served as a Member-at-Large (2008-10) and participated in AMATYC's Project ACCESS Cohort 6. This Spring he'll be moderating a panel on the Vision Project and its impact on higher education in Massachusetts. Dave presented at the last several NEMATYC Conferences on Course Redesign with members from Middlesex, North Shore and Quinsigamond Community Colleges. He also has presented with former ACCESS Fellows to promote the program.

VICE PRESIDENT

One-Year Term

ANNE O'SHEA

Anne O'Shea has taught mathematics at North Shore Community College since 1992, and has been a full-time faculty member since 2003. She received a B.A. in Economics from the University of Massachusetts, Amherst, an MS in Mathematics from the University of Massachusetts, Lowell and holds a Massachusetts Teaching License for Secondary Mathematics. Anne was a fellow in the first cohort of Project ACCESS. She has presented at both AMATYC and NEMATYC conferences and was a co-chair of the 2013 NEMATYC Spring Conference. She is presently a member of the NEMATYC Executive Board.

SECRETARY

One-Year Term

MARSHA PEASE

Marsha is in her sixth year as a member of the mathematics faculty at North Shore Community College. She earned a B.S. in Mathematics from Bates College, an M.S. in Computer Science from Boston University, and an Ed.D. in Mathematics Education from UMass Lowell.

Marsha was selected as an AMATYC ACCESS fellow in 2007. She has presented at NEMATYC and national conferences on topics related to engaging students in learning mathematics.

MEMBER-AT-LARGE (two to be elected)Two-Year Term

ROBERT CANTIN

Bob is a Math Learning Specialist and adjunct math Professor at MassBay Community College. Prior to that, after a career in industry as a computer developer and executive, he taught and tutored math at Middlesex CC and Fisher College. Very active at the national and regional level discussions involving developmental math programs and using technology, he has attended the last several annual AMATYC meetings, is a member of the Placement and Assessment and Developmental Math committees, and has recently served on a state level DHE Task Force to review and recommend developmental math policies. He has presented at several NEMATYC meetings. He has designed and implemented several math education programs at MassBay CC.

ALEX COTTER

Alex Cotter is in his third year as a member of the Mathematics Department at Massasoit Community College, and is currently serving as Department Chair. He received his B.A. in Mathematics and Philosophy from Stonehill College and his M.A. in Mathematics from Boston College, and is also a graduate of Massasoit Community College. Previously, Alex taught math at the high school level, and had been an adjunct and professional tutor at Massasoit Community College.

Prior to the election, nominations will also be welcomed and accepted from the floor.

Mary Kehoe Moynihan, Nominating Committee Chair

FOCUS ON A COLLEAGUE

I was talking to **Lynne DeSantis** of Mt Washington College at a recent meeting of the Northeast Section of the MAA. I have known her for many years through NEMATYC, AMATYC, and the NE-MAA. I learned that she is a Navy veteran with an especially interesting, I think, background, from a teaching and social viewpoint. Being a Navy veteran myself it caught my attention. I asked her to send me some biographical information, and her thoughts on teaching mathematics, that I could share with our colleagues. The following is slightly modified from her submission.

“My first teaching experience after finishing my MA in mathematics at the University of Michigan in Ann Arbor in 1976 was at the Naval Nuclear Power School in Orlando, FL, as a commissioned officer. This was an interesting time to be a female line officer in the Navy. In 1976, our uniform required a knee length skirt with nylon stockings and a choice of either 2 inch or 3 inch high heels, with a cap that resembled an upside down bucket. By 1981, female officers could wear slacks, comfortable, but well-shined shoes, and a canvas cap that was more similar to the men’s uniform cap. In 1976, I was the 4th woman to be hired as a faculty member at the Naval Nuclear Power School, and was personally interviewed by Admiral Rickover. By 1981, female faculty members were no longer unusual.



We taught with slide rules and paper exam banks. The mathematics courses for enlisted machinist mates and electrician’s mates were algebra based, while the officer’s mathematics courses were calculus based.

I have been a full-time mathematics faculty member at Mount Washington College, formerly Hesser College, since 1994. I still believe that standardized exam banks, (thankfully now electronic) are useful in providing consistency in any given mathematics course. I think that it is helpful for students to develop calculator proficiency as early as possible in college mathematics courses, including the developmental mathematics courses. I think that it is helpful for students to develop statistical software proficiency in their college statistics courses. I think that it is helpful for students to apply mathematical methods in scenario-based, career-focused case studies whenever this is possible in a mathematics course.”

JOIN NEMATYC

You are a member if you attended the Spring conference at North Shore Community College, or if you mailed in your \$10 membership fee, or if you will be attending this spring’s conference.

Not a member?

Join by sending the \$10.00 annual membership fee, payable to NEMATYC, to

David Cox, NEMATYC Treasurer
Southern New Hampshire University
2500 N. River Road
Manchester, NH 03106

The picture at the right is of a street sign in Aix-en-Provence, France. It says “If you are left speechless, call Academia”.



The NEMATYC STUDENT MATH LEAGUE RECOGNITION AWARD PROGRAM

by Dave Henry, NEMATYC Student Mathematics League Coordinator

Recognition Award Program

The purpose of the NEMATYC Student Mathematics League Recognition Awards Program is to foster extracurricular mathematics learning opportunities for students through participation in the AMATYC Student Mathematics League (SML). The top-placing student in the AMATYC SML Competition at each school in NEMATYC's region receives a \$100 award. The only criteria is the student must participate in both the Fall and Spring competitions.

The top school receives the Lois A. Martin NEMATYC Student Mathematics League Award. Last year Springfield Tech dethroned two-time defending champion Quinsigamond, earning the 2nd Annual Lois A. Martin Award.

Highlights and History

This fall Middlesex took the halftime lead among NEMATYC schools and ranks 49th in the nation (189 schools). If Middlesex can score well in the second round, the school would take top honors for the first time since 2007. New Hampshire Tech - Concord is only five points back led by Garrett Bryan, who scored the highest of 119 students in the entire Northeast Region. NEMATYC schools had 10 of the top 20 individuals in the Northeast. The highest scorer in the first round tallied 35.5 points (out of 40) and 1270 students took the exam across the nation.

Join the Fun

The second test of the 2013-2014 competition will be given from Friday, February 14th through Saturday, March 8th. If your college does not have a team, please consider joining the spirited rivalry among NEMATYC schools. Your involvement can be as simple as just administering the tests. Or, you might include practice sessions and even advise a campus mathematics club. Your students will thank you for giving them the opportunity to compete. It's still not too late to join the fun! Visit www.amatyc.org, or contact Dave Henry (david.henry@bristolcc.edu) for more information.

NEMATYC 2013-2014 Student Math League Standings After First Round

Students in Top 20 of Northeast Region				Teams in Top 20 of Northeast Region		
Rank	Name	School	Score	Rank	School	Score
1 (1)	Garrett Bryant	NHTI - Concord	20.5	1 (4)	Middlesex	68.0
2 (2)	Daniel Glassman	Springfield Tech	19.0	2 (5)	NHTI - Concord	63.0
3 (3)	Nicholas Huntoon	MassBay	18.0	3 (7)	Springfield Tech	54.5
3 (3)	Timothy Thomas	MassBay	18.0	4 (9)	MassBay	52.5
5 (6)	Shusuke Aizawa	Middlesex	17.5	5 (11)	Holyoke	51.5
6 (10)	Charles Huang	Middlesex	16.5	6 (12)	Quinsigamond	47.0
7 (11)	Aaron Ashbaugh	NHTI - Concord	15.5	7 (13)	Massasoit	39.0
8 (14)	Kyle McDonell	Middlesex	14.5	8 (14)	Bristol	28.0
8 (14)	Anthony Bassett	Massasoit	14.5	9 (15)	Roxbury	13.0
10 (19)	Sean Roda	Holyoke	14.0	10 (17)	Southern Maine	6.0

The Conference is in Lowell, so we offer the LOWELL QUIZ: True or False – Answers on Page 16.

1. Charles Dickens was a celebrity mobbed wherever he went when he visited the United States in 1842, and visited Lowell to see the mills and the “mill girls”.
2. There is good evidence that the writings of the Lowell mill girls was the inspiration for Charles Dickens' “A Christmas Carol”.
3. Jean-Louis “Jack” K rouac was an American novelist and poet. He is considered a literary iconoclast and, alongside William S. Burroughs and Allen Ginsberg, a pioneer of the Beat Generation. K rouac was born in Lowell in 1922.
4. Ed McMahon of the Johnny Carson show was born in Lowell.
5. The Beatles appeared in Lowell on a US tour before they became famous, when they were still called the Crickets.
6. Bette Davis was born in Lowell.

NEWS FROM THE CAMPUSES

Phil Mahler reports that at AMATYC 2014 in Nashville, TN, **Herb Gross** (Bunker Hill, emeritus) will be giving the Saturday morning breakfast keynote speech. Herb gave the speech at AMATYC 1993 in Boston and received the only standing ovation I have ever seen at my 22 or 23 AMATYC conferences.

On May 17 Corning Community College, SUNY, will bestow an honorary Doctorate of Humane Letters (D.H.L.) at commencement upon Herb.

Herb reports that in December he and his wife Louise celebrated their 60th wedding anniversary. He is especially pleased by the reception that his MIT calculus video series is getting from viewers from around the world. In the two years that the series has been available on the Internet it has drawn over 600,000 views. Herb's own website (www.mathasasecondlanguage.com), in approximately the same amount of time has had almost 50,000 views. His present goal is to complete the website and find ways to get it more widely known.

CAPE COLLEGE COMMUNITY COLLEGE

Mary Kehoe Moynihan reports

CCCC has revised all mathematics courses from Prealgebra through Precalculus. We now have STEM and non-STEM pathways that begin after prealgebra. The curriculum was rolled out in Spring 2014 and the old courses will be retired over the next few semesters as the students in those sequences complete their work.

Mary has been appointed as the Chair of the Joint AMATYC/ASA Statistics Committee.

Mary E. Sullivan is involved with planning the first annual Cape Cod Maker Faire at Cape Cod Community College on April 26, 2014. Maker Faire is a family-friendly event celebrating technology, education, science, arts, crafts, engineering, food, sustainability, and more. It gives local makers a chance to showcase their inventions and projects to the public and to meet other like-minded individuals, and it gives people of all ages a chance to explore their creative side, experiment, have fun, and be inspired.

Maker Faires are produced by Maker Media, publisher of Make Magazine. They produce two annual flagship Maker Faires each year in San Francisco and New York City. They also work with communities to license Maker Faires around the world. <http://makerfaire.com/map/>.

The White House has just announced that they will host a Maker Faire later this year.

COMMUNITY COLLEGE OF RHODE ISLAND

Melinda Duquette reports that she and five colleagues began incorporating Khan Academy into their 0500 arithmetic course. Thus far, the course is running smoothly and students seem to be enjoying the videos and online homework through the Khan Academy site. They were tested for the first time on the CCRI curriculum in the fall. If it all goes smoothly and we receive positive feedback from the students by the end of the semester this will open up much more opportunity for Khan Academy use in 0500 and perhaps more offered math classes here at CCRI. As we know books are expensive for students on top of the already high tuition costs. Having one less expense on their end makes a big difference!

QUINSIGAMOND COMMUNITY COLLEGE

Denise Robichaud reports you might enjoy the math poem at the link below. It was written by Jonathan Wolf, a friend of a student of Denise. He recites it at:

<http://grooveshark.com#!/s/Chapter+Zero+Binary+Genesis/3t0W1K?src=5>

SPRINGFIELD COLLEGE

Former NEMATYC President Andrew Perry reports "Here at Springfield College we are now offering a Sports Analytics minor. The flagship course MATH 288: Sports Analytics will be offered for the first time in the Spring 2014 semester."

So... what is the biggest number? (page 15)

Some of NEMATYC at AMATYC 2013 – Anaheim, CA



That would be **Jane Tanner**, our former Northeast Region VP, now, AMATYC President-elect, and **Dave Henry**, NEMATYC VP. It was Halloween evening, and Dave is dressed as Jeff Spicoli from *Fast Times at Ridgemont High*. “Check” the shoes.



NEMATYC Scores at AMATYC-Anaheim!

This year, the Faculty Math League competition was again sponsored by Mu Alpha Theta. The exam was given to 49 quite serious participants. This year, there was a tie for second place between **Aisha Arroyo** from Massasoit CC and **Aaron Levin** from Holyoke CC, and their success led to the Northeast Region winning the contest! The coveted Plexiglas statue for the winning regional team of three was awarded to VP **Jane Tanner** for the **Northeast Region** at the breakfast on Saturday.

Pictured above, from the left, **Jane Tanner** with competitors **Aisha Arroyo** (Massasoit CC), **Aaron Levin** (Holyoke CC), **Nathan Mercer** (Greenfield CC), **Steve Hilburn** (Holyoke CC).

By the way, the winner was Curtis Mitchell from Kirkwood CC and Curtis used to teach at Greenfield CC!



Many of the NEMATYC members who attended AMATYC 2013.

QUIZ answers (originally appeared in Fall issue, answers below)

- The home office of the following are in Washington, D.C. or a suburb thereof:
 - American Mathematical Society
 - American Statistical Association
 - Mathematical Association of America
 - National Council of Teachers of Mathematics

a. A, C b. All of them c. A, C, D d. B, C, D e. None of them
- MathFest means
 - AMATYC's symposium for Anaheim
 - The joint annual meeting of the AMS and the MAA
 - The opening ceremony at the annual NCTM meeting.
 - MAA's annual summer meeting
 - None of these
- AMATYC's home office was in Washington, D.C. before it was moved to Memphis, Tennessee.
 - True
 - False
- The National Science Foundation is located in
 - Arlington, VA
 - Boston, MA
 - Gaithersburg, MD
 - Washington, DC
- $\sqrt{\frac{1971755000 - \sqrt{8884794895}}{199771000}}$ is the exact value of π . How do you know your answer is correct?
 - True
 - False
 - This is an open question
- To find the 256,488th hexadecimal digit of π you must first calculate all the digits which precede it.
 - True
 - False
 - This is an open question

Answers:

- d) B, C, D; The American Mathematical Society is in Providence, Rhode Island.
- d) MAA's annual summer meeting. 2014: Portland, OR, August 7-9, 2014
- b) False; AMATYC's first and only office is in Memphis. It was opened September 1, 1993.
- a) Arlington, VA; a quick subway stop from Washington, D.C.
- b) False. This expression does produce the first 15 digits of π .
Paste $\text{sqrt}((1971755000 - \text{sqrt}(8884794895))/199771000)$ into <http://www.wolframalpha.com>.
But if this were exactly π , π would be an algebraic irrational number. It is not, it is transcendental. This was proved in 1882.
- b) False; generally functions which generate values like π do generate all digits before a given one. But a formula that will do this was only discovered in 1995. Check out "BBP-formula".

Register for the conference at http://www.NEMATYC.org/

What is the biggest number?

Infinity is not a number, it is a concept. We are talking about a number that in theory could actually be written down using our Hindu-Arabic system of notation. Graham's number, named after Ronald Graham, is a large number that is an upper bound on the solution to a certain problem in Ramsey theory. It appeared in a proof in 1977. It could not be printed anywhere in the observable universe, it is much too big. But its last ten digits are 2464195387. The web says much larger numbers have since been described, but the Graham number is the most well known, and the first, I believe, of these super numbers.

Why put this here? Ron Graham, former president of MAA and AMS, is famous for many things, and among them is popularizing the concept of Erdős number. He and his wife hosted Erdős many times when he was in this country and collaborated with him many times. And our luncheon presentation will be about Paul Erdős!

Answers to the Lowell Quiz

They are all true, except for #5 (of course!) but Paul Belanger who co-edited the video "[Paul McCartney Really Is Dead: The Last Testament of George Harrison](#)" was born in Lowell in 1968.

Srinivasa Ramanujan knew (among a myriad of other things) that $\frac{1}{\pi} = \frac{2\sqrt{2}}{9801} \sum_{k=0}^{\infty} \frac{(4k!)(1103 + 26390k)}{(k!)^4 396^{4k}}$.

I once had two students in my trig class memorize and recite π to 500 decimal places. Long before computers and Internet, I had passed out 500 printed digits and, spur of the moment, offered a grade of A to any student that memorized them and recited them before the class. Two of my 30 or so students did this.

The current record for reciting digits of π from memory, as recognized by Guinness World Records, is this many digits. (of course you can I-search it, but test your intuition first!)

- a) 2,829 b) 20,008 c) 67,890 d) 95,301

The letter of the correct answer is the 4th letter in the President's message, and the 8th letter of the fifth word of the regional VP's message.

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The NEMATYC Newsletter is issued twice a year, in the Fall and in the Spring. Suggestions and submissions may be directed to the president or the editor.

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