



# NEMATYC NEWS

Available online – [www.NEMATYC.org](http://www.NEMATYC.org)



Vol. 23, No. 2

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

Spring, 2015

## STEM Rests on Math

### NEMATYC 2015

41<sup>st</sup> Annual Meeting

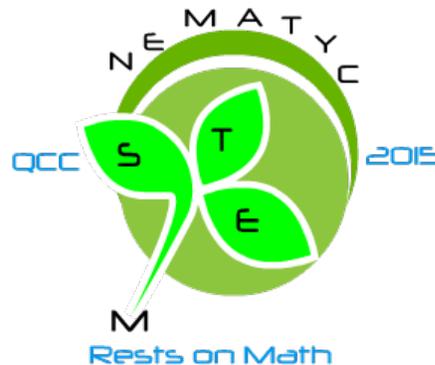
Friday and Saturday, March 27-28 2015

Denise Robichaud, Steve Zona, Co-chairs

Quinsigamond Community College

670 West Boylston St

Worcester, MA 01606



Register Now at

<http://www.nematyc2015.eventbrite.com>

#### PRESIDENT'S MESSAGE

**DAVE HENRY**  
**BRISTOL COMMUNITY COLLEGE**



As soon as we thought we might get through the winter without a storm, the Blizzard of '15 was soon upon us. Hopefully everyone made it through unscathed with a couple of days off to catch up with the busy work a new semester brings our way. Perhaps stats instructors can put the historical significance of the event in their bag of tricks for hypothesis testing: "What is the probability a winter storm that drops 20 or more inches will occur?"

Anyway, back to work and what a dynamic place a community college campus has become. PARCC, Vision Project, dual enrollment and interpretations of federal funding for developmental mathematics are but a few topics creating change and discussion at department meetings and beyond.

Many schools in Massachusetts this year are piloting programs where a student's grade point average may exempt them from developmental courses regardless of Accuplacer scores. Whatever your opinion may be about Accuplacer, the Board of Higher Ed was supposed to formulate a plan to

*continued on page 9*

**AMATYC NORTHEAST  
REGION VICE PRESIDENT  
ERNIE DANFORTH**



Although the snow is fresh, I know New England is celebrating the Patriot's Super Bowl victory. This somehow makes the winter easier to bear.

At the same time AMATYC's program committee is preparing to set to work on putting the program together for the 2015 Annual Conference in New Orleans.

In the meantime The "Refer a Friend" program is being conducted from January 1, 2015, through May 31, 2015. For each new member you recruit, you will receive \$10 off your next membership. In order to receive the discount, you will need to adhere to the following three rules.

1. The recruited colleague cannot have been an AMATYC member in the last five years.
2. The colleague needs to join as a regular member or an adjunct member.
3. You can recruit as many members as you want, but the maximum membership rebate amount cannot exceed your annual membership fee (currently \$85 for regular individual members).

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Conference  
Details Inside

# NEMATYC 2015

41<sup>st</sup> Annual Meeting

## STEM Rests on Math

Conference  
Details Inside

Denise Robichaud, Steve Zona, Co-chairs

Register now at <http://www.nematyc2015.eventbrite.com>



Denise Robichaud

Come to the heart of Massachusetts (Quinsigamond Community College in Worcester) to attend the next NEMATYC Conference on March 27 & 28, 2015. The conference theme is STEM Rests on Math.

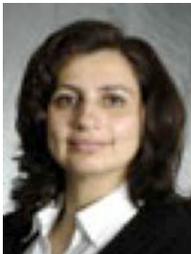
After Friday afternoon sessions, we kick off the conference (or weekend?) with an evening at the Worcester Historical Museum, where you can eat, drink, and explore Worcester's roots (STEM---get it!!!). Did you know that the father of rocket science, Robert Goddard, was born in Worcester?

For campus maps and pictures go to <http://www.qcc.mass.edu/szona/nematycButtonLinks.html>



Steve Zona

On Saturday we'll have a full day of sessions, including a keynote speaker at lunch. Our speaker will be **Soha Hassoun**, Associate Professor and Department Chair of Computer Science at Tufts University. The title of her talk is *Computational Modeling and Design for Engineering*. See her abstract and biography at <http://www.qcc.mass.edu/szona/nematycButtonLinks.html>.



Keynote Speaker  
Soha Hassoun

Topic – Computational Modeling and Design for Engineering

night and day in the city enjoying all that festivals, art shows, an art museum, (see the url below).

Thank you,  
Denise Robichaud & Steve Zona,  
Co-Chairs

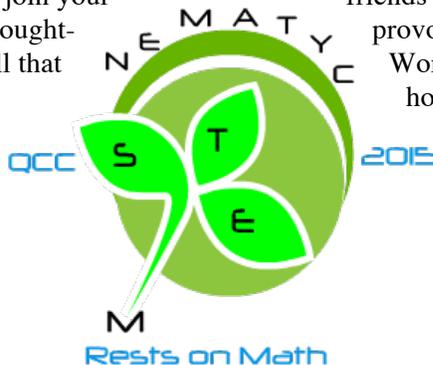
The elegant Beechwood Hotel, our conference hotel, is conveniently located at the corner of Route 9 (Belmont St.) and Plantation St. The hotel overlooks UMass Medical Center, Lake Quinsigamond, and is a short walk to restaurant row on Shrewsbury St. The hotel is giving conference attendees a courtesy rate of \$139 plus taxes. The Beechwood has plenty of free parking, a complimentary Executive Continental Breakfast, and in-room free internet. Reserve your room by February 27. See Conference Information elsewhere in this issue.



Harrington Learning Center  
Conference Headquarters

Come join your  
and thought-

friends and colleagues for a fun, informative,  
provoking conference (and maybe an extra  
Worcester has to offer – open mics, film  
hockey at the DCU Center, and more ...



<http://www.worcestermass.org/arts-culture-entertainment/arts-culture/cultural-calendar?datebegin=03/28/2015>

Register now at <http://www.nematyc2015.eventbrite.com>

# College Websites Feature STEM

Currently you can find the following on the home page of Holyoke Community College <http://www.hcc.edu/>. Professor **Denise Mrowka** inspires STEM futures. Used with permission.



The screenshot shows the Holyoke Community College website header with navigation links: LIBRARY, EMPLOYMENT, MYHCC, DIRECTORY, ESPAÑOL, and РУССКИЙ. A search bar is present with a dropdown menu and a search button. Below the header is a large image of Professor Denise Mrowka writing on a chalkboard. To the right of the image is the text: "A Solid Foundation for Transfer". Below this text is a paragraph: "HCC graduates continue their education at public and private colleges and universities in Massachusetts and beyond." Another paragraph follows: "Whatever your goals, HCC's dedicated faculty and staff will help you get where you want to go." At the bottom right of the image area, there are five small thumbnail images and a "Read More" link.

For a while this year, this was featured on the North Shore CC website home page. Our NEMATYC colleague **Professor Walter Stone** represents STEM education at the college. Used with permission.



The screenshot shows the North Shore Community College website header with the college logo and the text "North Shore Community College". A navigation menu includes: ABOUT, ACADEMICS, OFFICES, CALENDAR, NEWS & EVENTS, and A - Z | Find Courses. Below the navigation menu is a large image of Professor Walter Stone pointing at a whiteboard. The whiteboard contains mathematical equations:  $6x^2 + 96x$ ;  $P(1, 80)$ ; "tangent line";  $(x^2 + 96x) - 80$ ;  $x - 1$ ;  $(x - 5)(x - 1) = 6$ ; and  $x - 1$ . On the left side of the image, there is a vertical menu with the following items: Prospective Students, Current Students, Alumni, Faculty & Staff, Parents & Families, Community, and Corporate Education.

# Preliminary Conference Information

NEMATYC 2015  
Quinsigamond Community College  
670 West Boylston St.  
Worcester, MA 01606

You can still submit a proposal for a presentation at <http://nematyc.info/PROPOSAL/>.

This 41<sup>st</sup> annual conference begins Friday, March 27, in the afternoon and continues through Saturday afternoon on March 28. Your registration fee includes the Friday night event!

## FRIDAY NIGHT EVENT

Join us at the Worcester Historical Museum in downtown Worcester. Dinner will feature fabulous comfort foods from O'Connor's Restaurant. Then we'll have the whole museum to ourselves for viewing.

*Sponsored by PEARSON PUBLISHING*

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## FRIDAY Highlights

2:30 to 4:30 – Registration  
3:15 – Presentations begin  
6:00 to 9:00 – Dinner and viewing at the Worcester Historical Museum\*  
\* Park in either the museum parking lot or at the Pearl Elm Garage a half block away (\$1 after 5pm).

## SATURDAY Highlights

8:00 to 12:00 – Registration and continental breakfast until 10:00  
8:30 – Welcome  
9:00 – Presentations begin  
12:15 – Lunch and speaker\*\*

\*\* Soha Hassoun, Associate Professor, Tufts U.  
“Computational Modeling and Design for Engineering”

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## Local Accommodations

The Beechwood Hotel is at 363 Plantation St., Worcester, MA 01606. It offers plenty of free parking, a complimentary Executive Continental Breakfast, and in-room free internet. **Register by February 27** to get a courtesy rate of \$139 plus tax (mention “QCC conference/NEMATYC”). Call 508.754.5789 to reserve a room. The courtesy rate is available for up to two nights.

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## For Your GPS

- Quinsigamond Community College: 670 West Boylston St., Worcester, MA 01606
- Worcester Historical Museum: 30 Elm St., Worcester, MA 01609
- Beechwood Hotel: 363 Plantation St., Worcester, MA 01605



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## Registration

Register online and pay by credit card or by check at <http://www.nematyc2015.eventbrite.com>.

Register by mail using the registration form on p. 10.

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## Additional Information

For additional conference information visit the NEMATYC website at <http://nematyc.org> and the QCC conference website at <http://qcc.mass.edu/szona/nematycButtonLinks.html>

# THE PROGRAM

Most, but not all, of the presentations for the 2015 March conference, alphabetic by speaker.

## **The Flipped Classroom Approach**

### **Donald Brechlin – Southern Connecticut State University**

The technology to foster change in the way we conduct business in our classes is here? Give students a chance to digest direct instruction on their own time and speed and leave the classroom time for problem solving, small & large group discussions, etc. There are so many options and variations at your disposal. If you find yourself frustrated by the same results semester after semester, perhaps it is time to try something different. Nothing changes if nothing changes.

## **Quinsigamond Community College’s Emporium Evolution**

### **Philomena D’Alessandro – Quinsigamond Community College**

The QCC developmental math emporium sections transform developmental math education in a way that personalizes the experience for each individual student and promotes acceleration through the developmental math sequence. Utilizing computer-based learning, the emporium model is a student-centered, flexible learning environment that is supported in real-time by individualized instruction, interaction and engagement in a computerized math classroom. The students have the opportunity to complete multiple developmental courses in a single semester and have their intermediate progress saved for the next semester. Many of the key design features that have been implemented within the past three years will be discussed.

## **The “After Math” : How well are we preparing our transfer students and getting others ready for a STEM career?**

### **Mita Das – Middlesex(MA) Community College**

How are we doing in “higher level” math courses? Teaching Calculus and Differential Equation courses for STEM majors in a Community College is challenging due to the uneven “Calculus readiness” of students.

How do we handle this diversity of backgrounds and readiness?

Is Calculus a barrier for college completion in two years?

After successful completion of our Calculus and Differential Equations courses, are our students mathematically at the same level with their counterparts coming from four-year colleges or universities?

## **STEM(Students Transformative Engagement in Mathematics): Assignment Redesign**

### **Mita Das – Middlesex(MA) Community College**

In a developmental Math class we all are learners; the teacher and the students alike. Every day teachers learn how to be more effective in the classroom. We experiment with different styles and strategies driven by the question: Are the students indeed acquiring solid mathematical understanding? Effective teaching largely depends on student engagement. Assignment redesign is one of the key ingredients to this recipe. An interesting and appropriate assignment not only engages students, it transforms a passive learner into an active learner. I will share some of my redesigned assignments and look forward to a lively discussion with sharing of ideas.

## **Math Remediation Redesign: Flipping the College Classroom with In-Class Tutoring**

### **Lynne DeSantis – Mount Washington College**

This flipped-classroom course redesign model for the freshman-level college mathematics course uses a vendor’s adaptive learning technology and collaborative peer group learning activities with peer-to-peer in-class tutoring and instructor in-class tutoring for students who need mathematics remediation. The course redesign model and data collection results that measure course effectiveness will be presented using assessments based on the course outcomes.

## **Hybrid: ½ the Time 4 Student Success**

### **Andreana Grimaldo – Quinsigamond Community College**

Are you interested in the hybrid/blended learning environment? Let’s explore a learning environment that harnesses the best practices of a traditional classroom(i.e. collaborative, discovery-based, interactive learning) and mixes it with robust and proven online learning strategies. By mixing the “best of both worlds”, a mathematical learning environment has been created that spells s-u-c-c-e-s-s for students.

### **Find Your STEM in the NFL quarterback rating system!**

#### **Steve Krevisky – Middlesex(CT) Community College**

The National Football League(NFL) uses a multivariable formula for rating its Quarterbacks(QB's), both by the season, and by career. How does the Patriots' QB, Tom Brady, stack up, via this system? How can this model be improved? Teachers of Algebra, Statistics and Quantitative Literacy will find this useful. Bring your calculators!

### **STEM Learning Communities: The Entente Cordiale among the STEM Disciplines**

#### **Aaron Levin-Holyoke Community College**

There is a significant body of research supporting the use of Learning Communities to boost both student learning and academic achievement. Learning Communities provide inquiry-based and innovative educational strategies which work to improve student retention, motivation, and success. Why then do we see little or no strictly STEM-centered Learning Communities at our community colleges? As STEM fields develop and STEM-careers become more plentiful, the need for students to demonstrate increased skill in areas such as scientific reasoning, comprehension, and quantitative/analytical reasoning(to name just a few) is vital to the future of an educated society.

### **Robotics in the STEM Curriculum**

#### **BJ Lauer-Quinsigamond Community College**

This presentation will explore STEM curriculum using robotics at the K-12 and college level. A focus will be placed on the variety of technical and 21st Century skills learned by students. Potential in-demand careers will be highlighted.

### **Online Math Software: Beneficial or Not?**

#### **Magdalena Luca – Mass College of Pharmacy and Health Science**

In this presentation I will examine the benefits and the drawbacks associated with the adoption of online math software systems. For many years, our department had discussed the adoption of such software. The need for an online system was due to class size and lack of graders. In the Fall of 2013, we adopted a learning system for almost all of our math courses. I will describe my experience teaching Calculus I using this online system by showing specific examples of the benefits and issues I have encountered in Spring 2014. In addition, I will discuss my involvement in piloting a different online system for teaching Precalculus this semester. I invite all participants to engage in a discussion about their experience using online math software and its implications in learning mathematics.

### **GeoGebra Tips and Tricks**

#### **Joseph Manthey – University of Saint Joseph**

GeoGebra is an extremely versatile free dynamic mathematics software package which combines elements of geometry software, computer algebra systems and spreadsheets. In this presentation we will explore some tips and tricks for working with GeoGebra including dynamic text, color systems, working with images, spreadsheets, fine tuning animations, the sequence command, the locus command, exporting to GeoGebraTube and more. After attending this session, participants will be better able to use GeoGebra in their classes.

### **An Accelerated Pathway for Non-STEM Students**

#### **Brian Mercer – Parkland College**

At state and national levels, pressure and excitement are building to offer alternative pathways through developmental math. Attendees will learn about a Math Literacy course inspired by AMATYC's New Life initiative that allows students who place at the beginning algebra level to reach college level math in one semester. While this course was designed for the students heading to liberal arts math or statistics, one goal is to inspire students to pursue a STEM-related field. Schools implementing this new course have seen benefits for both their STEM and their non-STEM students.

## **Long STEM Roads for Life**

### **Andrew Miller – Berkshire Community College**

Perspectives on STEM Education: Science, Technology, Engineering and Mathematics professionals are in demand and the supply is wanting. Government and Industry concerns have motivated STEM activities and funding for grades K - 16 to increase the supply. What shape are these activities taking? What are the roles played by colleges, high schools, and elementary schools in the preparation for STEM careers?

## **Math, Science, and the Automobile**

### **Donald Morin – Quinsigamond Community College**

By means of a PowerPoint and discussion, this presentation will show how math and science are used in Automotive Technology.

## **Tired of hearing your students say “When will I ever use this?”**

### **Denise Mrowka – Holyoke Community College**

In this session, I will share with you some of my favorite science discovery activities that reinforce developmental math skills. These activities are also appropriate for math classes. A few of these activities involve basic Excel skills, so this session is taught in a computer classroom. No previous knowledge of Excel is required.

## **Hands-on with Khan Academy’s New Algebra Basics Mission for Placement and Stem**

### **Tim O’Connor – New England Board of Higher Education**

Khan Academy’s Universal Dashboard gives students and instructors real-time access to targeted math Missions, immediate feedback, Coach reports, and Mastery Challenges to identify learning gaps and confirm student understanding of Mission related skills.

## **Half Measures Toward the Flipped Math Classroom**

### **Andrew Perry - Springfield College and Asnuntuck Community College**

In this presenter’s opinion, the flipped classroom is so logical and compelling an idea that we must all move somewhere in that general direction eventually. On the other hand, the transition may be slow and tricky for faculty as well as for students and we have to proceed cautiously. I will discuss some intermediate measures I’ve personally taken toward a flipped classroom and encourage audience members to share their own experiences in the session. In addition, I invite interested parties to email me [operryand@gmail.com](mailto:operryand@gmail.com) in advance of the session with any comments, suggestions, or contributions.

## **Computer Algebra Systems-How I Use Them to Teach Low-Achieving Students**

### **Tom Reardon-Youngstown State University**

Find out what CAS is and how to use it to help your students discover and learn algebra, geometry, and beyond. See why CAS should be called Dynamic Algebra and how it encourages students to persevere when doing algebra. Obtain several great teaching and learning ideas-hands-on! All materials will be made available to participants. I am organizing an international CAS conference in Cleveland this July and this can serve as an introduction to what you will see and do at the conference.

## **The Midpoint Polygon Problem**

### **Tom Reardon-Youngstown State University**

Discover how I used dynamic geometry to discover interesting patterns among ratios of perimeters and areas of what I call midpoint polygons. Some very surprising results that include some interesting mathematical modeling. I will supply the dynamic geometry on iPads for you to investigate and discover the patterns.

## **Transformational Geometry Comes Alive-Immediate Interactive Investigations**

### **Tom Reardon-Youngstown State University**

I have been working with a computer programmer for over a year to create colorful, interactive, and intuitive activities that will assist middle and high school students (and their teachers) to investigate and learn about translations, reflections, rotations and dilations. You will be among the first mathematics educators to get hands-on experience with these on supplied iPads. Your feedback will prove valuable to us-these activities will soon be made available to the public for free. Our goal is that users will be actively investigating the geometry within 15 seconds of starting the technology-iPads, handhelds, or software.

## **What's Your Base?**

### **Elizabeth Reith – Great Bay Community College**

Working with Number Bases is often intimidating for both student and teacher. These activities will give teachers another approach to the concepts involved. Number Base activities will go from the concrete to the abstract by using manipulatives to show converting from base 10 to another base and vice versa. Participants will then move to pencil and paper. We will also cover operations with number bases as time allows.

## **Mathematics and Planet Earth**

### **Catherine Roberts – College of the Holy Cross**

Mathematics of Planet Earth([www.mpe2013.org](http://www.mpe2013.org)) is a world-wide initiative to explore how the tools of mathematics can help us understand our planet, specifically urgent issues such as climate change, how to manage our fish and forest resources, etc. This talk will introduce you to the steps of mathematical modeling and will explore how mathematics helped the Grand Canyon National Park best schedule white-water rafting trips. Come see gorgeous photos, a short video, and learn about the power of mathematics to make the world a better place!

## **Predicting Ebola**

### **Catherine Roberts – College of the Holy Cross**

The 2014 outbreak of Ebola in West Africa relied on mathematical models to predict how many cases would emerge so that governments and health organizations could adequately prepare their response. Using real data from 2014, we will show how to choose a model and use available data to determine the parameters of the model. We will use the model to make predictions as to the future number of cases. The audience will work together to derive a linear and an exponential model and will discuss the pros and cons of each approach. This material would be appropriate for a classroom that has discussed linear equations.

## **Multiple sudden infant death: Coincidence or beyond coincidence in Sally Clark's.....**

### **Eiki Satake - Emerson College**

On hearing that a family has suffered two, three, or even four sudden infant deaths(SID), what should our initial reaction be? Should we view multiple deaths with a great deal more suspicion than an occurrence of just one sudden death in a family? Slightly more than a decade ago, a young couple in England suffered one of the most devastating losses imaginable – their first baby Christopher died in his sleep, aged only 11 weeks, and their second baby Harry also died in his sleep, aged 8 weeks. Four weeks later after Harry's death the couple were arrested, and eventually the mother, Sally Clark, was charged with murdering both children. She was convicted and given a life sentence by the Royal Supreme Court. This research presentation illustrates how the Bayes Rule saved Sally Clark's life and proved her legally innocent.

## **Use of OER's and a Personal Website to help reduce student costs**

### **Ann-Marie Simao – Springfield Technical Community College**

Textbook costs are extremely high for all students. Open Education Resources(OER's) are a way to help students reduce textbook costs. You can create a textbook with only the information that your students need and update the text as often as you need to. You can also use a personal website to supplement information for students. Personal websites can contain a link to the online and PDF versions of the text, helpful worksheets with answers, helpful websites, videos in English and Spanish, class syllabus and test dates.

## **Mastery Learning – A Higher Standard**

### **Kenneth Takvorian – Mt Wachusett Community College**

Come and Explore with me!

See how I have employed Mastery Learning with guided pacing in my Developmental Math classes for the last 4 years. Classes are held in a computer lab with a professional tutor. My classes are split into three groups: Independent learners, Those Needing a lecture, and Those Testing. Motivated students may finish the course early possibly allowing them to begin and complete a second math course in the same semester. The course has built in Reflection Point questions and a procedure for working on Skills Not Mastered before being allowed to retake a test.

Question?

Are Students Better Served by Mastery Learning?

## Developing Questions for Developmental Mathematics

**Natalya Vinogradova - Plymouth State University**

During this session, participants will examine the difference between closed and open-ended questions. Every participant will have an opportunity to create a few questions leading to interesting mathematical investigations that will keep their students engaged.

## Statistics and Ecology

**Barry Woods – Unity College**

Excel will be used to demonstrate the use of statistics in Ecology. From the Z-test for one-proportion (25% green peas according to Mendell), to the chi-square goodness of fit test for the 9:3:3:1 ratio for “Fast Plants,” to the Z-test for the Holgate statistic (spatial distribution), to the use of a 2-sample t-test used to compare Shannon-Wiener diversity indices, the use of statistics is of paramount importance in the study of Ecology.

## High School GPA in College Math Placement

**Maureen Woolhouse – Quinsigamond Community College**

In the late fall of 2013, the Office of the Commissioner of Education suggested that both four-year and community colleges attempt to experiment with the use of recent high school graduate GPA's as a mechanism for placement into college level math classes. Many campuses have attempted to do this, using the GPA in differing ways. This panel led discussion will look at some of the mechanisms used by several campuses and potentially examine some preliminary data from these experiments.



### FROM THE 24<sup>TH</sup> TO THE FIRST

At the November 2014 AMATYC Annual Meeting, **Nancy Sattler**, AMATYC's 24<sup>th</sup> President, presented the “Herb Gross Lifetime Achievement Award” to AMATYC's 1<sup>st</sup> President **Herb Gross**.

Most of us know that Herb retired a few years ago from Bunker Hill Community College, and if you have not heard him speak you must not have been at MMATYC 1972 (NEMATYC's precursor), NEMATYC 1980, 1991, 1995, 2004, or 2012, at all of which he was an invited keynote or luncheon speaker. Herb has also spoken over the years, and recently, at MATYCONN and NYSMATYC, as well as numerous other AMATYC affiliates and other organizations.

## The Worcester Quiz – Part 2

Part 1 of the Worcester Quiz was in the Fall, 2014 Newsletter. This one contains one or two repeats.

True or False (answers on page 15)

- a. Valentine cards were created in Worcester in the 1830s, and thus the city's seal contains a heart.
- b. On July 14, 1776, Isaiah Thomas performed the first public reading of the Declaration of Independence in front of the Worcester town hall.
- c. The famous "Springfield Rifle" was actually produced in Worcester.
- d. New England Candlepin bowling was invented in Worcester by Justin White in 1879.
- e. Loring Coes invented the first monkey wrench in Worcester.
- f. Russell Hawes created the first envelope folding machine in Worcester.
- g. On June 12, 1880, Lee Richmond pitched the first perfect game in Major league baseball history for the Worcester Ruby Legs at the Worcester Agricultural Fairgrounds.
- h. Worcester is replete with colleges, notably: College of the Holy Cross, Worcester Polytechnic Institute, Clark University, UMass Medical School, Assumption College, MCPHS University, Becker College, Worcester State University, Quinsigamond Community College.
- i. The elm tree was imported from Holland to Worcester in 1824, and spread across the U.S. from there.
- j. Notable parks in Worcester include Elm Park, which was laid out by Frederick Law Olmsted in 1854, and it is one of the first purchases of land to be set aside for use as a public park in the United States.
- k. Robert Hutchings Goddard, born in Worcester and a college professor there, was an American engineer, professor, physicist, and inventor who is credited with creating and building the world's first liquid-fueled rocket, which he successfully launched on March 16, 1926.
- l. Benedict Arnold was born in Worcester.
- m. Jane G. Austin, writer, was born in Worcester.
- n. Ernest Lawrence Thayer, poet and journalist, famous for "Casey at the Bat", was born in Worcester.
- o. Elias Howe, inventor of the practical sewing machine, was born in Spencer, near Worcester.
- p. Clara Barton was born in North Oxford, near Worcester, and had many links to Worcester people. She sent battlefield relics from the Civil War to the Worcester Historical Society.



### AMATYC Affiliate Scholarship

The NEMATYC Executive Board has adopted a new method of awarding its AMATYC Affiliate Scholarship (one free conference registration, worth \$300+). At the annual meeting in Worcester, every membership school will be in the running to win the scholarship through a raffle held at the lunch meeting. The only restriction is that someone from your school must be in attendance during the proceedings. Each institution then will determine the individual recipient. But, in the spirit of the scholarship, priority should be given to first-time attendees (the individual must also be an active AMATYC member). Hope to see you in New Orleans!

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# Conference Registration Form

New England Mathematical Association of Two Year Colleges  
41<sup>st</sup> Annual Meeting – Friday and Saturday, March 27 & 28, 2015  
Quinsigamond Community College  
670 West Boylston St., Worcester, MA 01606

**Early Registration Discount Date: Tuesday, March 17, 2015**  
You can register and pay online at <http://nematyc2015.eventbrite.com>

NAME \_\_\_\_\_  
Preferred Mailing Address \_\_\_\_\_  
Home \_\_ College \_\_ \_\_\_\_\_  
Phone \_\_\_\_\_ Email \_\_\_\_\_  
Institution/Affiliation \_\_\_\_\_  
Would you be willing to serve as a presider? \_\_ Yes \_\_ No

## **CONFERENCE REGISTRATION FEE**

The registration fee covers admission to all conference activities and NEMATYC membership. (Friday night dinner and Saturday lunch cannot be guaranteed for attendees who register after March 17.)

### **Which activities do you plan to attend?**

Friday afternoon sessions  
 Friday night dinner/event\*  
 Saturday morning sessions  
 Saturday lunch  
 Saturday afternoon sessions

### **Registration Type**

Full-Time Faculty \$70 (\$80 after 3/17)  
 Adjunct Faculty \$40 (\$50 after 3/17)  
 Student \$40 (\$50 after 3/17)  
 Current ACCESS Fellow Free\*\*  
 Presenter Free\*\*

\*Sponsored by Pearson Publishing

\*\* Still includes NEMATYC membership

**TOTAL ENCLOSED** (Checks must be postmarked by 3/17 for discount.) \$ \_\_\_\_\_

Please include the name(s) of the attendee(s) on the check.

Make the check payable to: “NEMATYC c/o Denise Robichaud”

Mail registration and check to: Denise Robichaud  
Box 302  
Quinsigamond Community College  
670 West Boylston St.  
Worcester, MA 01606

Questions? Denise Robichaud ([drobichaud@qcc.mass.edu](mailto:drobichaud@qcc.mass.edu)) or Steve Zona ([szona@qcc.mass.edu](mailto:szona@qcc.mass.edu))

<p><b>Refund Policy</b> 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.</p>
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**Henry continued**

determine the effectiveness of Accuplacer testing a long time ago. While we all have anecdotal evidence that the system may be not working optimally and some form of change may be needed, we should include data driven evidence about the best way forward.

One of the major obstacles is that every school district, every teacher and every student is unique (there are too many lurking variables). Ideally, placement should be as easy as viewing a transcript. If a student had high school precalculus that student should be ready for calculus. I think this ideal situation is where all this discussion is heading. I am optimistic we can find a better way to match students with appropriate placements by using a combination of standards.

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**Danforth continued**

The reason that I renew my membership year after year is because of the many benefits I receive. These include:

- The *MathAMATYC Educator*, the peer-reviewed journal published 3 times per year; this includes online access to all past editions of the AMATYC journal.
- The *AMATYC News*, a newsletter published 4 times per year; this includes online access to past editions dating back to 2003.
- Regular email updates from AMATYC that keep me informed of upcoming events and opportunities.
- Priority registration for AMATYC webinars that occur frequently for free throughout the year and access to the webinar library.
- A reduced conference registration rate equal to more than the cost of the yearly membership.
- The satisfaction of knowing that I am supporting an organization that
  - Advocates at the national level for mathematical teaching and learning in the first two years of college.
  - With AMATYC Project ACCCESS, supports newer colleagues as they are oriented to their chosen profession.
  - Supports a top-notch national mathematics competition for two-year college students.
  - Gives awards for teaching excellence and service to two-year mathematics educators.
  - Provides an annual student scholarship.
  - Provides a venue for communities of learners to discuss topics of interest. That is, free membership in our nine academic committees.
  - Supports the 44 state and local affiliates around the country.
  - Regularly publishes position statements to support best practices in mathematics teaching and learning.

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**AMATYC Presidential Student Scholarship**

Each AMATYC affiliate may submit one nomination for a \$1,000 scholarship, which is awarded by a drawing (44 affiliates, but not everyone nominates) at the AMATYC conference. Criteria: 1. Nominating institution must have one active member of AMATYC; 2. Minimum student GPA 3.0; 3. Nominated student must be majoring in math (at next school) and enrolled full-time at the nominating institution during the Spring semester.

**Example:** Joe Smith is at Bristol CC this spring and will be transferring to Bridgewater State to study Mathematics and has a GPA of 3.15.

For more information or questions, contact David Henry ([david.henry@bristolcc.edu](mailto:david.henry@bristolcc.edu)).

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# 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.

## 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 NEMATYC's Vice President.

## MEMBER-AT-LARGE (two to be elected)

### Two-Year Term

#### AISHA ARROYO

Aisha Hsu Arroyo holds an BS in Applied Mathematics from the Georgia Institute of Technology and a MS in Mathematics from the University of Illinois at Urbana-Champaign. She has been teaching full-time at Massasoit Community College since Fall 2013. She enjoys teaching a variety of courses from developmental mathematics through calculus, and is also involved outside of the department as a tutor in the Academic Resource Center and a faculty advisor for the Chess Club. Before coming to Massasoit, she taught at Wentworth Institute of Technology and Bunker Hill Community College.

#### ALICE WILSON

Alice graduated with a BA/MA in Mathematics and a BS in Biology from SUNY Potsdam in 2006. She was hired as a full time developmental math instructor at Bristol Community College in January 2011. Prior to that, she worked as an adjunct at MassBay and Dean College as well attending NEMATYC regularly.

Alice was a Project ACCESS Cohort 8 fellow and is currently a state delegate representing RI at AMATYC. She was part of a Presidential Fellowship team to create the current computer-aided developmental math sequence at Bristol Community College.

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

**Meredith Watts**, Nominating Committee Chair

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## JOIN NEMATYC

You are a member if you attended the most recent Spring conference, at North Shore Community College, or if you mailed in your \$10 membership fee, or if you submit a registration for 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

## 2015

2015 is the third Lucas-Carmichael number. From Wikipedia:

A **Lucas-Carmichael number** is a positive composite integer  $n$  such that if  $p$  is a prime factor of  $n$ , then  $p + 1$  is a factor of  $n + 1$ . They are named after Édouard Lucas and Robert Carmichael. By convention, a number is only regarded as a Lucas-Carmichael number if it is odd and square-free (not divisible by the square of a prime number) otherwise any cube of a prime number, such as 8 or 27, would be a Lucas-Carmichael number (since  $n^3 + 1 = (n + 1)(n^2 - n + 1)$  is always divisible by  $n + 1$ ).

2015 is a palindrome in binary representation: 11111011111. (What is the next year that will be a binary palindrome?)

## The NEMATYC STUDENT MATH LEAGUE RECOGNITION AWARD PROGRAM

by Mary Kehoe Moynihan, 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 the Award was won by Middlesex Community College.

### Highlights and History

This fall Massasoit and New Hampshire Tech – Concord share the halftime lead among NEMATYC schools and rank 6<sup>th</sup> in the Northeast Region. Last year's winner, Middlesex, as well as Greenfield, are close behind. NEMATYC schools had 7 of the top 20 individuals in the Northeast.

### NEMATYC Student Tops Nationally!

The top student in both NEMATYC's region and AMATYC's Northeast Region is **Minwoo Yoo at Bunker Hill CC**. In fact, **Minwoo is first in the entire AMATYC competition at this point, ranking number 1 out of 1,321 students!**

### Join the Fun

The second test of the 2014-2015 competition will be given from Friday, February 13 through Saturday, March 7. 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](http://www.amatyc.org), or contact Mary for more information.

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### NEMATYC 2014-2015 Student Math League Standings After First Round

#### NEMATYC Students in Top 20 of AMATYC Northeast Region

Rank	Name	School	Score
1	Minwoo Yoo	Bunker Hill CC	40.0
9	Daniel Glassman	Springfield Tech CC	19.5
11 (tie)	Roy Gernhardt	Massasoit CC	18.0
13	Nicholas Giacchino	Middlesex CC	17.5
14 (tie)	Alexander Turner	NHTI - Concord CC	17.0
14 (tie)	Hieu Ngo	Massasoit CC	17.0
18 (tie)	Antonio Borges	Bristol CC	15.5

#### NEMATYC Teams in Top 20 of AMATYC Northeast Region

Rank	School	Score
6	Massasoit CC	70.0
6 (tie)	NHTI - Concord CC	70.0
8	Middlesex CC	67.0
9	Greenfield CC	66.0
10	Springfield Technical CC	61.5
12	Bristol CC	59.0
13	Cape Cod CC	54.0
15	Holyoke CC	46.0
16	Bunker Hill CC	40.0
17	North Shore CC	34.0
18	Roxbury CC	23.0
19	Mount Wachusett CC	15.0

## Some of NEMATYC at AMATYC 2014 – Nashville



At the conference, relaxing in the evening: **Ken Takvorian**, NEMATYC At-large Executive Committee member (Mt Wachusett CC), **Wanda Garner**, former AMATYC President and current Executive Director, Cabrillo College, CA, **Steve Zona**, Quinsigamond CC and current NEMATYC Conference Co-chair, and **Cliff Martin**, Massasoit CC.

### NEMATYC Member Scores at AMATYC-Nashville – Aisha Arroyo

This year, the Faculty Math League competition was again sponsored by Mu Alpha Theta.

There was a tie for **first place** between **Aisha Arroyo** from **Massasoit CC** (shown) and Curtis Mitchell, Kirkwood CC; Curtis once taught at Greenfield CC. Last year Aisha tied for second place with **Aaron Levin** of Holyoke CC (see the Spring 2014 Newsletter).



Many of the NEMATYC members who attended AMATYC 2014 in Nashville.

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### AMATYC 2014 – IT ROCKED

by *Phil Mahler*

As always, the recent AMATYC meeting was a huge success. If terms like meta-major and non-STEM pathways are not on your radar, you must not be involved in remediation.

The two main speakers were great. Zalman Usiskin on the Common Core, and Founding President **Herb Gross** (Bunker Hill CC emeritus) gave terrific presentations. And if you want to see them, go to the AMATYC web site - links to youtube copies are on the home page! (You can move the youtube time marker to skip the preliminary stuff if you want, in each case.) Both were informative and entertaining.

In my 30 years of AMATYC involvement I have seen speakers get standing ovations twice. Once was at this conference, for Herb. The other was at the 1993 AMATYC conference in Boston. For Herb. ☺ And AMATYC created the “Herb Gross Lifetime Achievement Award” and made its first awardee Herb himself (see page 9).

NEMATYC President Dave Henry mounted a great poster for us about our history. It was among many posters of affiliates, and ours was unsurpassed.

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Our Massasoit colleague **Cliff Martin** has created a scholarship in the name of our past colleague, **Lois Martin**, and created the Math Team Board shown in this picture. Cliff presented the Board to **Massasoit President Charles Wall** on October 29, 2014. In the picture are NEMATYC Student Math League co-moderators **Kerryn Snyder** and **Andrea Torres**, and Cliff.



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#### ANSWERS to the Worcester Quiz

a. False–Worcester is known as the "*Heart of the Commonwealth*", thus, a heart is the official symbol of the city. However Worcester was known for producing Valentine cards in the 1830s. b. True–Isaiah Thomas published the *Massachusetts Spy*, which he was forced to move to Worcester at the start of the American revolution. c. False–There were many “Springfield Rifles” and they were all associated with the Springfield, MA, armory, which is now the campus of Springfield Technical Community College! d. True e. True f. True g. True h. Of Course i. Totally false. j. True k. True l. False m. True n. True o. True p. True

**Register for the Spring NEMATYC conference at**  
**<http://www.nematyc2015.eventbrite.com>**

## Feature on a Colleague: Aliza Miller, Mt Wachusett CC



### Aliza is participating in the 11<sup>th</sup> Cohort of NEMATYC's highly successful and popular Project ACCESS.

A college press release, upon her acceptance, noted the following. "I am very excited and proud to have this opportunity, which I view as a wonderful stepping stone in my career," said Miller, who joins Project ACCESS in its eleventh year. "By working within a network of individuals who have similar work backgrounds, I'll have lifelong contacts to both seek advice and discuss teaching practices. I look forward to the prospect of



bringing different projects to the Mount and sharing them not only with my students, but the community at large," said Miller, who project at an AMATYC con-

After previously working as an adjunct professor at four colleges, Miller began her first full-time faculty position at MWCC in 2012. She earned a bachelor's degree in science and mathematics at McGill University in Montreal, Quebec, and holds a master's degree in mathematics from the University of Vermont. She previously taught English for two years in Taiwan.

After Aliza's first cohort meeting at the November 2014 AMATYC conference in Nashville, she notes "My experience as an ACCESS Fellow attending the National AMATYC conference in Nashville was an intense immersion of idea-sharing and networking. We attended tailored workshops, presentations, and conference events, all the while trying to develop the beginnings of a project to bring back to our community."

The two pictures are of wall decorations in her home. I suspect Aliza brings a lot of excitement to her classes.

Phil Mahler  
Editor



will present her first  
ference in 2015.

## More on Math Notation

In the Fall issue I exhibited sample pages from Russian and from Chinese texts which use those languages and alphabets to describe mathematics, but write formulas and pure algebraic expressions in the Roman alphabet, rendering much of it recognizable to a western reader.

I hypothesized that this might be true in other non-Roman alphabets, notably Arabic. However, I came across the following page (<http://www.w3.org/TR/arabic-math>), demonstrating just how different mathematics can be, even depending upon which Arab speaking culture you are talking about.

<b>English</b>	$f(x) = \begin{cases} \sum_{i=1}^s x^i & \text{if } x < 0 \\ \int_1^s x^i dx & \text{if } x \in S \\ \tan \pi & \text{otherwise (with } \pi \simeq 3.141) \end{cases}$
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<b>French</b>	$f(x) = \begin{cases} \sum_{i=1}^s x^i & \text{si } x < 0 \\ \int_1^s x^i dx & \text{si } x \in E \\ \text{tg } \pi & \text{sinon (avec } \pi \simeq 3,141) \end{cases}$
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<b>Moroccan</b>	$f(x) = \begin{cases} \sum_{i=1}^s x^i & \text{إذا كان } x < 0 \\ \int_1^s x^i dx & \text{إذا كان } x \in E \\ \text{tg } \pi & \text{غير ذلك (مع } \pi \simeq 3,141) \end{cases}$
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<b>Maghreb</b>	$\left. \begin{array}{l} \left. \begin{array}{l} \sum_{i=1}^s x^i \\ \int_1^s x^i dx \\ \text{tg } \pi \end{array} \right\} \text{ إذا كان } x < 0 \\ \left. \begin{array}{l} \sum_{i=1}^s x^i \\ \int_1^s x^i dx \\ \text{tg } \pi \end{array} \right\} \text{ إذا كان } x \in E \\ \text{tg } \pi \end{array} \right\} = (s) \text{ مع } \pi \simeq 3,141$
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<b>Machrek</b>	$\left. \begin{array}{l} \left. \begin{array}{l} \sum_{i=1}^s x^i \\ \int_1^s x^i dx \\ \text{tg } \pi \end{array} \right\} \text{ إذا كان } x > 0 \\ \left. \begin{array}{l} \sum_{i=1}^s x^i \\ \int_1^s x^i dx \\ \text{tg } \pi \end{array} \right\} \text{ إذا كان } x \in E \\ \text{tg } \pi \end{array} \right\} = (s) \text{ مع } \pi \simeq 3,141$
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## NEMATYC EXECUTIVE COMMITTEE – Spring 2014 - Spring 2015

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	<p>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.</p>	<p>NEMATYC NEWSLETTER                  Philip Mahler, Editor                  Middlesex Community College                  591 Springs Road                  Bedford, MA 01730-1197</p>
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