

## MAA Mathfest

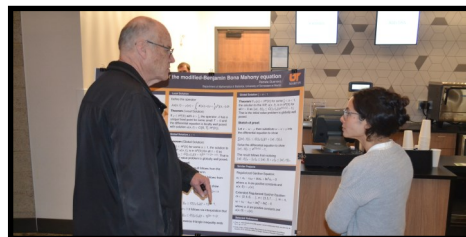
MathFest celebrates all aspects of mathematics. MathFest will be within driving distance of West Tennessee this year. The conference is a great opportunity to see what mathematics beyond high school (and beyond college) can look like. MathFest focuses on college mathematics, but the conference can also appeal to high school students and teachers who are math nerds enthusiasts. Note the titles of these three sessions from last year's meeting: *Mathematical Modeling with Preservice (and In-Service) Teachers*, *Moving Toward Data Science in Statistics and Sports*, and *All You Need is Math: Connections Between Mathematics and Music*. MathFest 2024 is August 7-10 in Indianapolis, IN. Learn more at <https://maa.org/meetings/maa-mathfest>

## TMTA in Martin This Year

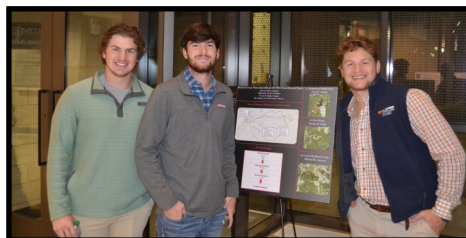
Save the date: The Tennessee Mathematics Teachers Association Conference is September 27-28, 2024 in Martin, Tennessee.

## CENS Undergraduate Research Posters

College of Engineering and Natural Sciences students present their research each semester. The public are invited. High school students interested in STEM are especially welcome. There are snacks. Scenes from 11/30/23:



Tom Eskew (L) discusses differential equations with Pamela Guerrero (R)



Paul Atkins, Peyton Kiddy, and Michael Armour pose with their flood hazard poster.

## Math Contests

TMTA High School contest is April 2, 2024.

Middle School contest is April 4, 2024.

## Contact Us

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## Borrow Some Stuff



Last semester's newsletter featured a link to a video of a demonstration of the triple point of water using a vacuum pump. It is a great video, but you can also demonstrate the idea live. Borrow a vacuum pump, vacuum plate, and bell jar from the STEM Center and provide a demonstration of the triple point for your students. You can also demonstrate the behavior of marshmallows in a vacuum. Yummy.

Marshmallows not included.



# Summer 2024 Workshops and other resources

Workshops are free. Seating is limited and registration is required. Registration opens later this spring. Subscribe to the STEM Center listserv (by sending a request to eelliot7@utm.edu) for announcements. Workshop participants receive lesson plans and a certificate of attendance. Where appropriate, participants also receive equipment required for the lessons described.

**Workshop Topics.** Dates and locations will follow soon. The tentative plan is to offer workshops on science, particularly chemistry and mentioning Open SciEd. We will look at the new science standards to clarify issues related to textbook selection in the coming year.

**Math Hombre.** <https://mathhombre.blogspot.com/> Math Hombre is a blog about a variety of math topics. There is an extensive page on math games, including links to entirely different web pages of games <https://mathhombre.blogspot.com/p/games.html>. There are games to use in class and games specifically for family fun nights. There are games to play with standard card decks. Other games have instructions for making game pieces with paper, markers, glue, and other craft supplies. A card game that caught my attention is called Hamburger <https://mathhombre.blogspot.com/2019/11/hamburger.html>. The game focuses students' attention on the ordering of the natural numbers. Two or more players start with two cards each. A player draws a card and trades it for one of the cards in the player's hand. If the drawn card is between the original two in size (numerical order), the player gets a point. Otherwise, the player should trade to maximize the distance between the player's cards to increase the chance of getting a "between" card on the next draw. Scoring automatically narrows the range between the two held cards, decreasing the likelihood of scoring on the next draw. In a hamburger, the meat is "between" two bread slices, thus the name of the game.

**Classroom Resource Index.** *Convergence* is the Mathematical Association of America's online journal for the history of mathematics and its use in teaching. One feature of *Convergence* is the Classroom Resource Index, which provides ready-to-use materials for teachers interested in using the history of mathematics in teaching. There is material labeled "General Strategies" suitable for any grade level. The index also lists specific strategies organized by grade level. The first general strategy is *Alien Encounters* by Gavin Hitchcock. It features a play in two acts about 17th and 18th century difficulties with acceptance of negative numbers. Knowing that professional mathematicians can struggle with mathematics should help our students embrace their own struggles. Find the index at [bit.ly/3NmjpYc](http://bit.ly/3NmjpYc)

**Just in time for Valentine's Day**, here is a curve you can fall in love with, adapted from [\\_the\\_grapher\\_](#). Use an online graphing utility such as Desmos or GeoGebra. In GeoGebra create a slider for the value  $a$ . Desmos will offer creation of a slider when you type " $a$ ." Allow  $a$  to range from  $-5$  to  $5$  with step size  $0.1$ . Enter the formula, set the color to red. Vary the value of  $a$ , and enjoy. You may also access the graph using the QR code to the right.

$$y = x^{2/3} + \sin(5a)a + (\sin([10\pi(x+a)]/a)) (1/a + 4^2 - x^2)^{1/2}$$

