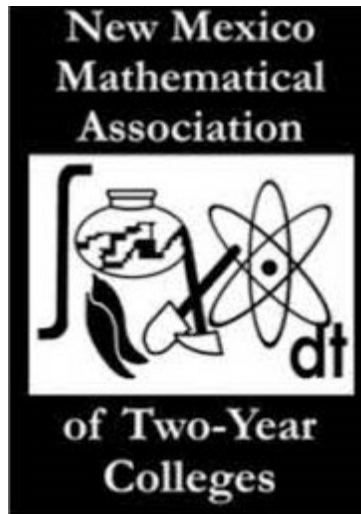


2023 NMMATYC/MAA Southwestern Section Conference

April 14th-15th, 2023

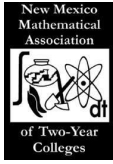
At

El Paso Community College



Mathematical Association of America
Southwestern Section





Mathematical Association of America
Southwestern Section

2023 NMMATYC/MAA Southwestern Section Conference

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FRIDAY APRIL 14TH, 2023

CONTINENTAL BREAKFAST AND REGISTRATION

Lobby 8:00AM – 8:50AM

BREAKOUT SESSION 1

9:00AM – 9:50 AM

BREAKOUT SESSION 2

10:00AM – 10:50 AM

BREAKOUT SESSION 3

11:00AM – 11:20 AM

BREAKOUT SESSION 4

11:30AM – 11:50 AM

LUNCH

Lobby 12:00PM – 1:15 PM

LUNCH SPEAKER: Dr. Larry Lesser – **“Poetry + Math = A Meaningful Path!”**

BREAKOUT SESSION 5

1:30PM – 2:20 PM

BREAKOUT SESSION 6

2:30PM – 3:20 PM

MAA SOUTHWESTERN SECTION MEETING

3:30PM – 4:30PM

MARIACHIS & SOCIAL HOUR

5:00PM – 6:00 PM

DINNER, BANQUET, & AWARDS CEREMONY

6:00PM – 8:00PM

KEYNOTE SPEAKER: DR. JENNIFER QUINN – **“Solving Mathematical Mysteries”**

BREAKOUT SESSIONS

SESSION ONE • 9:00AM – 9:50AM

ROOM

- B321 [Agyei-Kodie, Eugene](#) – **“Recursion formulas for determinants of k-Tridiagonal Toeplitz Matrices”**
This article explores the derivation and properties of recursion formulas for determining the determinants of k-tridiagonal Toeplitz matrices, which are commonly used in numerical analysis, physics, and engineering applications. These formulas offer a fast and efficient method for calculating the determinants of these matrices, and several examples are provided to demonstrate their accuracy and usefulness. Furthermore, this paper examines the asymptotic behavior of the determinants for large values of k and provides numerical simulations to support the theoretical results. The presented recursion formulas have the potential to be applied in a variety of fields, such as signal processing, statistics, and computer science.
In this study, I expand upon the work of Borowska to identify recursion formulas for determining the determinants of all k-tridiagonal Toeplitz matrices with $k > 2$. As a result, I plan to present my findings at the upcoming conference.
- B322 [E. Aguirre, R. Carrizales, & I. Chuca](#) – **“Effective Online or Face-to-Face Teaching Practices”**
Three math instructors will share ACUE’s Effective Online Teaching Practices they implemented during the 2022-2023 class. These ACUE practices can be used by faculty from any discipline teaching either online or face-to-face. ACUE stands for the Association of College and University Educators, and EPCC partnered with ACUE to equip faculty with evidence-based teaching practices to improve student engagement, increase persistence, and close equity gaps. Smile with us when you learn how small student-centered teaching practices can positively impact your students.
-

SESSION TWO • 10:00AM – 10:50AM

ROOM

- B321 [M. Smith](#) – **“Flipped classrooms, active learning, and backwards design”**
In this talk, I will give an overview of flipped classrooms and backwards design. I will discuss advantages and disadvantages of using these strategies, and share results from my attempts at flipping my own classes. I will also provide examples of active learning activities and provide helpful references.
- B322 [A. Isassi](#) – **“Gardening & Mathematics”**
Many people turned to gardening and landscaping during the COVID-19 virus pandemic. Gardening has many health benefits such as reducing stress, improve self-esteem, combating dementia, and many other benefits. I will share some projects I have done to motivate students and faculty to use gardening and landscaping projects to deal with stress. I will show before and after pictures of transformations on yards, patios, and offices while relating it to mathematics and as a source of motivation to never quite what you start.
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SESSION THREE • 11:00AM – 11:20AM

ROOM

B321 **B. De Los Reyes – “Accounting Field”**

In my presentation I will cover my journey from EPCC to UTEP and give a description of who I was before beginning my journey at EPCC and how I decided to pursue my master and bachelors and associates in accounting. I will also cover what I am doing now as a Staff accountant at EP Rivernend. I will also reference how math is crucial to learn and how accounting not only uses math but has its own math sub categories to learn. In the beginning, coming from a low-income family of 7, many options of school were not always available for me. Regardless, this didn't stop me or my family members to all push to learn accounting. From my mother being an accountant, to my brother, this is something that always fascinated our household. It took a lot to decide to go back to school and even now I wonder what would have happened if I didn't. I'm so glad I did.

B322 **L. Ellis – “Using ChatGPT in college math classrooms to build students' conceptual understanding”**

(via Zoom) ChatGPT is a new artificial intelligence chatbot released in November 2022 that allows users to engage in a human-like conversation with the program. While there have been voices of concern in academia about the potential for students to cheat using this program, I focus on the positive aspects of ChatGPT in the mathematics classroom. In this talk, I will discuss ways to use ChatGPT in a college mathematics classroom to enhance students' conceptual understanding, without replacing the instruction and problem-solving that are integral to the college mathematics experience.

SESSION FOUR • 11:30AM – 11:50AM

ROOM

B321 **O. Kosheleva – “Women in mathematics”**

In this talk we will present short biographies and description of mathematical contributions of several famous women, such as Sofia Kovalevskaya, Ada Lovelace, Olga A. Ladyzhenskaya and others. We describe their life and struggle and path to becoming renown mathematicians. These women kept their passion for mathematics despite personal challenges, tragedies, and deteriorating health conditions. These women are unsung heroines, and their lives and achievements should be remembered by future generations.

B322 **R. Holguin – “Visualizing mathematics in Precalculus and Calculus”**

The presentation will cover visuals of the graphs of trigonometric functions for precalculus and for calculus visuals of Riemann sums, cross-sectional volumes and how to find the radius of solids of revolution when the rotating line is not the x or y axis.

LUNCH

Lobby • 12:00PM – 1:15PM

Dr. Larry Lesser - "Poetry + Math = A Meaningful Path!"

In honor of April being National Poetry Month as well as National Mathematics and Statistics Awareness Month, we'll compare, contrast, and integrate the products and processes of these beautiful realms. I'll overview types of mathematical poetry and share examples written by me or by others. You'll get to try making (and maybe sharing!) your own verses as time, interest, and logistics allow. You can browse some of Lesser's STEM poetry and papers about STEM poetry at <https://larrylesser.com/poet-larry-ate/> and find further resources at the end of <https://www.ams.org/programs/students/math-poetry>

SESSION FIVE • 1:30PM – 2:20PM

ROOM

- B321 **I. Chuca & V. Fernandez – “Get to know your students and build a sense of belonging”**
Presenters will share the impact of using student surveys throughout the semester to get to know their students better. These surveys give students the opportunity to voice their concerns, needs, and share feedback regarding the class. Presenters will also share other activities and methods they use in their classes to engage students and help build a sense of community.
- B322 **J. Peebles – “Math is Not Just Working Problems and Passing Exams”**
In this talk I would like to introduce you to some resources you might not know about, so you can simply introduce your students to new areas of mathematics without taking large amounts of class time.

SESSION SIX • 2:30PM – 3:20PM

ROOM

- B321 **F. Chen – “Breaking Borders with Math: Join the El Paso Math Teachers' Circle for Fun, Connection, and Critical Thinking”**
The El Paso Math Teacher’s Circle (EPMTC) provides opportunities for math educators throughout the K-16 pipeline in our unique international border region to connect, communicate, and enhance our individual and collective knowledge of math and its practical applications. It is a safe place for us to discuss mathematics with colleagues of different backgrounds and learn from each other. As a founder and host of EPMTC, I really enjoy seeing my colleagues and their family member’s moment when they are solving some interesting math problems and/or playing with puzzles, games. Join me to play some games and see how you can help make math a thing in our area.
- B322 **J. Smart – “Free Yourself and Your Students from Expensive Online Homework Platforms with MyOpenMath”**
Publisher homework platforms may have some nice features, but are also expensive, and can be filled with features that we don't use. Learn how MyOpenMath, a free, open-source math homework solution can help you and your students succeed with any textbook choice.

MAA Southwestern Section Meeting • 3:30PM – 4:30PM

Room

- B322 **MAA – “MAA Southwestern Section Meeting”**
The MAA Southwestern Section group will meet and discuss business.

MARIACHIS & SOCIAL HOUR

Lobby • 5:00PM – 6:00PM

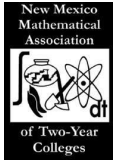
Come join us in the common area for live mariachis. Refreshments will be available.

DINNER, BANQUET & AWARDS

Lobby • 6:00PM – 8:00PM

Dr. Jennifer Quinn- “Solving Mathematical Mysteries”

Much as mysteries in fiction consider evidence, find common patterns, and draw logical conclusions to solve crimes, mathematical mysteries are unlocked using the same tools. This talk exposes secrets behind a numerical magic trick, a geometric puzzle, and an unknown quantity to find a fascinating pattern with connections to art, architecture, and nature.



Mathematical Association of America
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SATURDAY APRIL 15TH, 2023

COFFEE & PASTERIES

8:00AM – 8:50 AM

BREAKOUT SESSION 7

9:00AM – 9:50 AM

9:00AM – 9:20AM

9:30AM – 9:50AM

BREAKOUT SESSION 8

10:00AM – 10:50AM

BREAKOUT SESSION 9

11:00AM – 11:50AM

11:00AM – 11:20AM

SESSION SEVEN • 9:00AM – 9:50AM

Room

B322 **E. Valles– “Gender Equity in Mathematics”**

This presentation will give an overview on issues specific to promoting gender equity in the field of mathematics. Relevant data regarding some of the continued struggles in the field specific to gender/racial inequity will be discussed, as well as viable strategies for promoting more females and minority groups in the area of mathematics.

SESSION SEVEN • 9:00AM – 9:20AM

B445 **J. Buzinski, S. Bakker, & F. Robles Rodriguez – “Multilevel Methods for Image Deblurring”**

We present a multilevel method for solving the image deblurring problem. In this method, we use wavelet transforms to define restriction and prolongation operators within a multigrid-type iteration. We present results that indicate the promise of this approach.

SESSION SEVEN • 9:30AM – 9:50AM

B445 **L. Murphy, M. Godinez Pedraza, L. Millan, & S. Guerra – “Exploration of Mars Images”**

The Thermal Emission Imaging System (THEMIS) is one of three main instruments aboard the Mars Odyssey spacecraft. Built and maintained by ASU, it continuously takes visible light images of the

surface of Mars. In this presentation we show how we explore these images using linear algebra and other mathematical approaches.

SESSION EIGHT • 10:00AM – 10:50AM

Room

- B322 **E. Valles – “Using Statistics Effectively in teaching Political Science in a Partisan World”**
This presentation will discuss the need for the application of statistics in teaching political science/US government in a highly partisan world. Presenter will argue that Applying relevant and reliable data is not only academically sound, but necessary in order for students to better understand current political dynamics in a world that has become so divided that democracy is in peril.
- B445 **M. Espanol – “Multilevel Methods for the Light Transport Problem”**
Wavelet-based multilevel methods for inverse problems in imaging are presented and their potential in applications such as the light transport acquisition is demonstrated with numerical examples.
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SESSION NINE • 11:00AM – 11:50AM

Room

- B322 **V. Murga – “Analysis of a Flipped Hybrid Classroom”**
To better serve students, higher education institutions are now offering different modes of instruction, one of which is a flipped hybrid classroom. Come and see how students benefit from this modality and the challenges encountered implementing it!

SESSION NINE • 11:00AM – 11:20AM

- B445 **H. Knaust – “Inquiry-based Learning”**
I teach several inquiry-based learning courses. An example: "Introduction to Higher Mathematics" is a freshman/sophomore level course, modeling Mathematics research as a laboratory science. The course is based on materials developed at Mount Holyoke College and requires only co-enrollment in Calculus I. Small student teams explore several rich mathematical topics on their own. They perform mathematical experiments (with the help of a computer algebra system), formulate, test and refine conjectures, and eventually try to prove some of their conjectures. At the end of each two-week laboratory, the student teams write up their findings in a laboratory report.
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NMMATYC BOARD SESSION • 12:00PM – 1:00PM

Room

- B322 **P. Barrientos – “NMMATYC Board & Business Meeting”**
The NMMATYC Board and business meeting will take place to conclude the conference.
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Thank you for your attendance and participation!
See you at the next conference...

ASC Building B Map

