

NMMATYC News

New Mexico Mathematical Association of Two-Year Colleges

Fall 2017
Volume 30 Issue II

PRESIDENT'S MESSAGE

Greetings,

Fall is here and the holidays are near! Hope your semester is going great and that you are enjoying the beautiful New Mexican Fall filled with delicious smell of chile roasting and gorgeous fall colors.

Board members

First of all, I would like to introduce the NMMATYC board members. I am, Dr. Eva L. Rivera Lebrón from the Southwestern Indian Polytechnic Institute (SIPI). Our past president is Diana Orrantia and our webmaster is Philip Kaatz from Tucumcari. Our treasurer is Sarah Garde, our secretary is Fernando Falcon from EPCC and newsletter editor is Adrian Delgado from EPCC. Our AMATYC delegate is Dr. Joanne Peoples from EPCC, Arturo Dominguez from DACC is in charge of Membership, Elizabeth Gamboa from DACC is responsible of nomination and Alyne Fulte manages Articulation.

Conference

Please mark your calendar and save the date!! NMMATYC 2018 Conference will be hosted at SIPI in Albuquerque NM on May 19th and 20th, 2018. Please visit our webpage (<http://www.nm.matyc.org>) regularly to learn more about this. We will be updating our webpage, as details become available. Consider presenting at this conference or becoming a presider. Encourage your students to attend and participate.

More conference talk... This year's AMATYC conference was held on November 9 through November 12 in San Diego, California. It was an amazing experience where we met new people and share thoughts about different topics in mathematics education in 2-year community colleges.

Membership

If you are not a member of NMMATYC, I personally invite you to become one and enjoy the professional development opportunities, scholarships and networking that we can offer. Please visit our website (<http://www.nm.matyc.org>) for more information. Also, if you are not an AMATYC member yet, please consider it. You can visit their website at www.amatyc.org for further information.

Elections

Do you want to be part of NMMATYC? 2018 is election year for NMMATYC. We will be holding elections during this year's conference. If you know someone that would like to be part of this great board of members, please nominate them. You can also self-nominate yourselves!! Just make sure you send a small blurb, as well as a picture of you so we can put it in the ballot. We are looking for candidates for every position, especially president-elect. Being part of NMMATYC board has been a wonderful experience for me. Consider being part of this great group. NMMATYC needs you!!

Scholarships

Please spread the word about our scholarship opportunities, the Michelle Jimenez Scholarship and the Vicki Froehlich Scholarship. Also, remember to encourage your students to participate at the college Math League Competition. For more information, please visit our webpage (<http://www.nm.matyc.org>).

Please feel free to contact any of us if you have any questions, concerns, ideas or thoughts that will help to improve the NMMATYC organization.

Stay warm,
Eva Rivera



MESSAGE FROM THE SOUTHWEST VP

News from AMATYC
By Kathryn Kozak, VP of the SW Region

I have enjoyed being the Vice President of the Southwest Region of AMATYC for these last five and a half years. I have especially enjoyed attending NMMATYC conferences and meeting all of you. I enjoy the structure of NMMATYC's conference and have always felt welcomed when I attend. I have also been able to see parts of New Mexico that I have not visited before. I know the next Vice President of the Southwest Region will represent the region very well.



The election for AMATYC officers is completed and the new board will start on January 1, 2018. For the Southwest region April Ström from Scottsdale Community College in Scottsdale, AZ, is the new vice president. I extremely appreciate the members of AMATYC electing me as the President-elect of AMATYC. I look forward to serving AMATYC in this new position.

I hope that you are planning to attend the Annual AMATYC Conference in San Diego, AC, November 9 to 12. In addition to the great conference sessions, the exhibits, and the opportunities for networking with colleagues around the country, you will also be there for the unveiling of the new standards document called AMATYC IMPACT. I look forward to seeing you at the conference.

Lastly, I want to thank you all for having the faith in me to elect me for 3 terms as the Vice President. I am honored.

TRIANGLE PUZZLES

My interest in the consecutive heads distribution triangle was sparked by Stephen Kennedy’s talk “Two-Heads Are Better than None?” at 2017 NMMATAYCC/MAA. Any study of how many of at least k-consecutive heads leads to looking at Fibonacci generating functions.

There are two triangle puzzles to solve. The first is the distribution of consecutive heads when flipping a coin. The second triangle uses the first triangle to generate higher order Fibonacci numbers. The notation for the problem is that used by The On-Line Encyclopedia of Integer Sequences. The sequence for the triangle is at <https://oeis.org/A048004>.

Complete rows 5, 6 and 7 in the triangle given the recurrence formula:

$$T(n+1,k) = \text{Sum}_{\{h=0..k\}} T(n-k, h) + \text{Sum}_{\{i=n-k+1..n\}} T(i, k);$$

$$\text{for example } T(4,2) = \text{Sum}_{\{h=0..2\}} T(3-2, h) + \text{Sum}_{\{i=3-2+1..3\}} T(i, 2)$$

$$\text{or } T(4,2) = (1+1)+(1+2) = 5. \text{ Also, } T(4, 0) = 1 \text{ and } T(4,4) = 1$$

Try doing $T(5,2) = \text{Sum}_{\{h=0..2\}} T(4-2, h) + \text{Sum}_{\{i=4-2+1..4\}} T(i, 2)$ or $T(5,2) = (++) + (+)$. Now complete the triangle for rows 5, 6, 7. In addition, what is 2^N for rows 5, 6, 7?

N	2^N	0	1	2	3	4	5	6	7
0	1	1							
1	2	1	1						
2	4	1	2	1					
3	8	1	4	2	1				
4	16	1	7	5	2	1			
5				?					
6									
7									

The traditional method of completing the consecutive heads triangle is to generate the higher order Fibonacci numbers, then take the difference between the higher order

Fibonacci numbers. The recurrence formula was published at <https://oeis.org/A048004> on Jul 09 2017.

Use partial sums of the consecutive heads triangle to complete the triangle of higher order Fibonacci numbers. Complete rows 5, 6 and 7 given the formula for Higher Order Fibonacci numbers $H(n,k) = \sum_{h=0 \dots k} T(n,k)$. For example $H(4,2) = \sum_{k=0 \dots 2} T(4,k)$ or $T(4,2) = 1+7+5 = 13$. Try doing $H(5,2) = \sum_{h=0 \dots 2} T(5,2)$ or $H(5,2) = (+ +)$. Now complete the triangle for rows 5, 6, 7. Column 1 are the Fibonacci numbers. Column 2 are tribonacci numbers. Column 3 are tetranacci numbers. What -nacci numbers are in columns 4 through 7?

N	2^N	0	1	2	3	4	5	6	7
0	1	1							
1	2	1	2						
2	4	1	3	4					
3	8	1	5	7	8				
4	16	1	8	13	15	16			
5				?					
6									
7									

The triangle puzzles illustrate that there are still interesting problems to be solved and published. Again, my interest was sparked by my attendance at the 2017 NMMATAYCC/MAA conference in Las Cruces.

By Richard Southern,
El Paso Community College

WHAT NMMATYC MEANS TO ME

What NMMATYC means to me.

To begin, I wish to thank the Nominating Committee for awarding me the 2017 NMMATYC Professional Development Award. This award allowed me to attend the 2017 meeting, joint with the SW section of MAA, held in Las Cruces. As I said in the personal statement I gave the committee in my application packet, I enjoy attending the annual NMMATYC meetings to reconnect with colleagues around the state, to learn about the innovative things happening at our two-year campuses, and to present any new ideas I have about teaching developmental and entering college-level mathematics. Again, I was not disappointed.

This was the first year I attended the articulation meeting. It was great to meet representatives from the various campuses around the state, and to see how the articulation process works especially in this time of HED mandated common course numbering. I just got a taste of the process, but am planning to come back for more. I also gave a presentation about the complete redesign of the Math for Teachers content courses undertaken by The University of New Mexico. It is important for all of us to stay informed about what each of the other campuses in the state are doing in this critical area. I appreciate the opportunity to become part of this communication network.

I was able to connect with colleagues from other campuses on that first morning, after the articulation meeting, and share concerns and needs. I also gave a presentation about training of faculty for teaching online and review of classes that are fully or have a large component of the instruction taking place online. This gave me an opportunity to participate in informative discussions with colleagues concerned about these same issues.

I would encourage any faculty member at a two-year campus, in particular junior faculty, attend the NMMATYC conference each year. It is a friendly and inviting way to build collegial relationships that can last a lifetime.

Elaine Clark
University of New Mexico - Valencia

[EPCC HIT RECORD IN STEM EDUCATION](#)

EPCC Hit Record in STEM Education

El Paso Community College (EPCC), is proud to announce the success of the Scholarships in Science, Technology, Engineering and Mathematics (S-STEM) Program. The S-STEM Program is a collaborative project between EPCC, UTEP and NMSU which helps students stay on track to achieve maximum education.

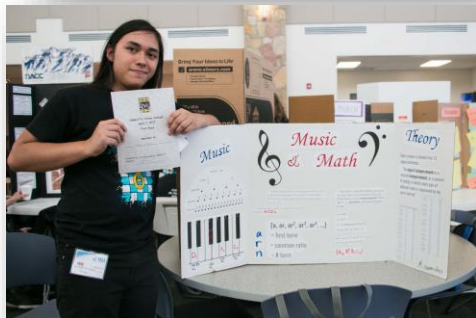
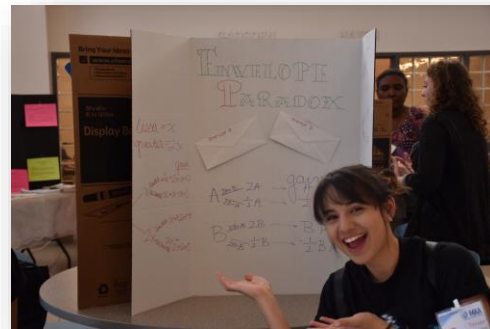
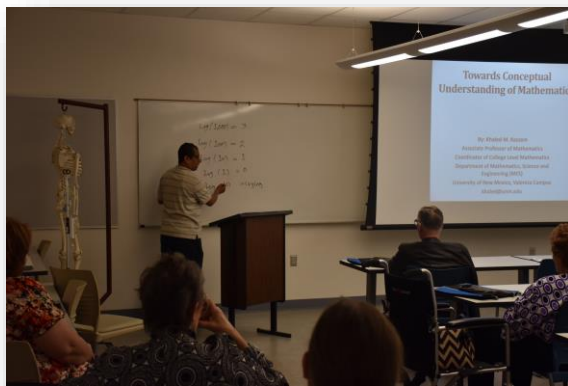
Funded by the National Science Foundation (NSF) since fall of 2011 and has been supporting students' financial and educational needs. The first S-STEM scholarship under the title of "Science and Mathematics Success Program" started in August, 2011 for amount of \$ 596,546 by the NSF who sought to give EPCC a fresh start with quality scholarship. Thanks to the collaboration of participating faculty, counselors, grant office advisors and financial aid officers the program was able to serve a total of 79 students through activities promoting the STEM fields and through financial support.

"We are proud to share with all of you that our S-STEM Program was able to exceed its original goal to provide educational opportunities to economically and culturally diverse students," said Dr. Fariba Ansari, Physics Instructor at EPCC. "In a six-year period length and under a friendly environment, our team of professionals was able to reach out students who took advantage of the opportunities offered." For more information, contact Dr. Fariba Ansari at fansari@epcc.edu or [\(915\) 831-4531](tel:9158314531).

The mission for EPCC's S-STEM Program is to help students who are pursuing a degree in Science, Technology, Engineering and Mathematics to continue and succeed in a four-year institution by providing counseling, financial aid and faculty mentoring, so the program participants can achieve their goals and a better future.

By Dr. Fariba Ansari
El Paso Community College

2017 NMMATYC CONFERENCE



2016 – 2018 NMMATYC BOARD

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UPCOMING CONFERENCES

43rd AMATYC Annual Conference
November 9 - 12, 2017
San Diego, CA



Joint Mathematics Meetings
January 10 – 13, 2018
San Diego, CA



NADE 2018
February 21-24, 2018
National Harbor, MD



MATH JOKE

ALL YOU NEED IS

$$y = \frac{1}{x}$$



$$x^2 + y^2 = 9$$



$$y = |-2x|$$



$$x = -3|\sin y|$$



ARTICLES FOR NEXT NEWSLETTER?

If you want to share any exciting news going on in your college, interesting presentation, best practices in the classroom, or events happening in the world of mathematics, have it published in the next NMMATYC Newsletter!

Submit your articles to Adrian Delgado at newsletter@nmmatyc.com

Visit us at www.nm.matyc.org
