



## GREAT THINGS ARE HAPPENING

The Department of Mathematical Sciences began the 2019-2020 with a number of changes. Walden Hall was completed a little more than 50 years old and is still shining bright at night, both as a classroom and as a tutoring center for students with questions.

This year, there is a new department chair, **Dr. John Harding**, is a native of Canada and went to McMaster University in Hamilton Ontario for his B.S, MS and for his PhD. He did a PostDoc at Vanderbilt University before joining NMSU, where he has been at NMSU for 23 years. He has a keen interest in undergraduate student recruitment and worked on an initiative to bring a education concentration to the mathematics department. He is also interested in outreach activities and fundraising. John is a logician with an expertise in foundations and has more than 70 publications and a number of

education grants that he has been heavily involved with.

The Associate Department Head continues to be **Dr Dante DeBlasie**, a native of Las Cruces and alumnus of NMSU who did his doctoral work at



the Massachusetts Institute of Technology. He came back to his roots nine years ago, after spending 25 years as an Aggie at Texas A&M. Dante is an expert in stochastic differential equations and conditioned processes. He has a passion for woodworking, and improving both undergraduate

and graduate teaching. Dante had the difficult task of redoing the schedule of classes. Most classes are now either Monday-Wednesday or Tuesday-Thursday, giving all research faculty more time to work with students and collaborate with their colleagues outside of the area.

The person running the Math Success Center is, **Dr. Mary Ballyk**, also from McMaster Canada. She too took her B.S. and Ph.D at McMaster University before doing a Postdoctorate at Vanderbilt University. Mary has been at NMSU for more than 20 years, serving in multiple roles and responsibilities. Her research area is mathematical biology, specifically in stability and bifurcation theory within systems in a chemostat. She is in charge of all service teaching, overseeing graduate students and other teaching through precalculus.

The master's and Ph.D programs were completely

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## GREAT THINGS ARE HAPPENING CONTINUED.

reworked last year, and all the course adjustment forms passed through the solid efforts of **Dr. Tiziana Giorgi and Dr. Bruce Olberding**. There is now a written master's examination based on advanced linear algebra and beginning real analysis, to help in assessment of our program. For the first time there is a known two year rotation of courses that graduate students can anticipate when deciding classes. New classes were introduced and others removed to make sure there is a balance among those being offered by the differing research groups.

After a large effort, there is a

new website for the department [math.nmsu.edu](http://math.nmsu.edu). The backbone of the changes were put online in the Spring 2019 due to time put in by **Dr. Pat Morandi and Dr. Tiziana Giorgi and Dr. Harding** has done the lion's share of updating the actual content. The department lost its system administrator three years ago, and with dying on the horizon, Pat and Tiziana were able, with Michael from ICT, to move most of the infrastructure to its new platform. There are still some hiccups, but tragedy was avoided this time.

One might ask where the stability comes from to allow so many changes to happen

so quickly. The answer is that our mathematics department has been graced by the best set of administrative assistants at NMSU. **Maria Sanchez, Dawn Rafferty and our newest assistant Nicole Heckathorn** are gifts that keep on giving. They are the memory from one department head to the next, from one graduate committee to the next, from one financial year to the next. They are here first thing every morning, doing whatever is needed for successful student learning. **Liz Eres**, a dedicated assistant for more than 2 decades retired in May of 2019 and will be truly missed.

## UNDERGRAD SUCCESS

### GETTING TO KNOW JEFFREY



**G**raduated in May, Jeffrey received a Bachelor of Science in Mathematics concentrating on Applied Mathematics. He also received a Bachelor of Arts in Economics, and a Bachelor of Business Administration in General Business. In the Fall, Jeffrey will be attending the University

of California, Santa Barbara, pursuing a master's degree in Applied Mathematics and a Ph.D. in Economics.

During his Ph.D., Jeffrey will focus on developing and experimenting with mathematical models that attempt to predict human behavior.

Jeffrey joined the Department of Mathematical Sciences during his junior year to complement his studies in Economics and make him a more competitive candidate for the increasingly rigorous field of microeconomic theory. He quickly found, however, that he began to enjoy math for its own sake more and more.

Jeffrey keeps trying to find ways to bridge the sizeable gap between behavioral economics and mathematics, realizing that few scholars are invested in both disciplines. Combining powerful mathematical tools with economic insight, Jeffrey strives to understand and predict irrational decisions people make.

# CHARLES AND NITA SWARTZ

## CHAIR IN MATHEMATICAL SCIENCES

The first endowed professorship in mathematical sciences has been established in the College of Arts and Sciences' Department of Mathematical Sciences.

The Charles and Nita Swartz Endowed Professorship in Mathematical Sciences is funded by Charles and Nita Swartz, long-time supporters of NMSU with a strong connection to the university.

Charles, an NMSU professor emeritus from the Department of Mathematical Sciences, and Nita, a retired Las Cruces elementary and middle school math teacher, were motivated to establish the professorship to ensure the strength and development of the department into the future. The professorship provides a continuous source of financial support to fund research activities, salary enhancement, and other scholarly expenses for a valued faculty member in the Department of Mathematical Sciences.

*"This department has a magnificent reputation and we wanted to create a permanent investment in it that would enhance the prestige of the program and positively impact faculty and students"*

Charles Swartz said of their inspiration to establish the professorship.

The first awardee is Dr. Dante DeBlassie, Associate Department Head of the Mathematical Sciences Department. Before he was Dr. DeBlassie or an endowed professor, he was a student in one of

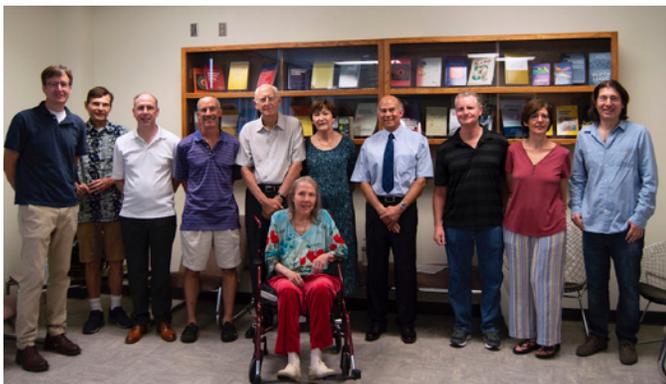


Charles' math courses as an undergraduate at NMSU. "Dante survived one of my classes, so we know he can persevere" Charles joked during a ceremony to honor the new professorship and its inaugural awardee on July 17, 2019, where he and Nita presented a check to the NMSU Foundation. This endowment extends Nita and Charles' history of giving back to the university, which was preceded by two endowed scholarships they funded in the College of Arts and Sciences during NMSU's 2018 Giving Tuesday.

The Charles Swartz Endowed Scholarship helps graduate students in the mathematical sciences, and the Nita Swartz Endowed Scholarship supports international women graduate students in the College of Arts and Sciences.

*"Education is the key to the problems this world is facing," says Nita, "and these students work very hard and are so worthy of a little bit of help. You can come to NMSU and get a good education - and there is help."*

"We are grateful to Charles and Nita for their generous support towards the NMSU community over the years," said Dr. Tina Byford, Interim Vice President for University Advancement. "The endowed professorship is an excellent example of their overall dedication to students and faculty at NMSU."



# ALUMNI SPOTLIGHT

## DR. KAREN TRUJILLO



Karen Trujillo, courtesy photo

On 19 August 2019, Dr. Karen Trujillo was named Interim Superintendent for the Las Cruces Public Schools. Dr. Trujillo was an undergraduate and graduate student in our department back in the 1990s, and has worked with many members of our department

over the years since then. I talked to her in Santa Fe, a few days before her confirmation, and this article is based on that conversation, and also the experiences of myself and others who have known and worked with Dr. Trujillo.

Karen Apodaca grew up in Santa Fe and Las Cruces. When she started as a student at NMSU, she knew she wanted to be a high school math teacher. She told me that she was very fortunate to take courses in our department at the time when the NSF-funded project for student projects in calculus was in full swing. She experienced those projects as a student in Math 191 and 192, then later wrote an honors thesis on project-based learning. She graduated from NMSU in 1992, and then went on to earn her Ph.D. in 1998, also from NMSU. Her dissertation, under the direction of Dr. O.D. Hadfield in the College of Education, was on project-based learning.

Another strong influence on Karen, as a student in our department, came from the courses she took based on historical sources. She has always had an interest in the human side of mathematics: the people and historical events that shaped the

field, and also the kinds of human interactions in classrooms that can challenge and inspire students. Here are some excerpts from a letter to one of her instructors, written on a course evaluation. I think these words say as much about what she values as an educator as they do about the particular instructor (who has asked to remain anonymous).

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*You assume that each student is capable and willing to learn mathematics when they enter your classroom. By taking this stand, you offer students (at all levels) genuine respect wherever they are at in their appreciation of math... Your enthusiasm for math is overwhelming. When you are teaching something it is very easy to become interested because you generate excitement. It is apparent that you really want to show as many people as possible how beautiful math is to you and you succeed... You always asked the right questions and never discouraged me... I remember exploring women in mathematics and being amazed by their stories and experiences.*

”

Another experience that shaped Karen's view of learning mathematics, while here at NMSU, was discovering the enjoyment and effectiveness of studying with fellow students. In fact, she met her husband, Ben Trujillo, because he was the roommate of one of the students in her study group. They were married in 1992.

After earning her Ph.D., Dr. Trujillo worked in a variety of positions related to teaching secondary mathematics. She has been a high school teacher at several schools, and a principal. She has worked as a professional development specialist and a

researcher on projects in the College of Education. She has worked extensively, over the years, with a number of the faculty in our department on funded projects such as Mathematically Connected Communities (MC2), Leadership Institute for Teachers (LIFT), and Math Snacks.

Those of us who have been fortunate enough to work with Dr. Trujillo on these projects know her to be personable, energetic, and highly organized. She quickly grasps situations and sees what is needed to get things done. She cares a great deal about the communities of New Mexico, and sees mathematics education as one important avenue to help those communities thrive. She maintains connections with many people in different professions and walks of life, and usually knows the right person to seek out, whether the issue is collaborating with high school math teachers, or which orthodontist you should choose for your child. If you sit in a meeting with her, you will often see her filling pages with regular, semi-geometric doodles - something that helps her concentrate.

She has a variety of hobbies and interests, many of which involve community in some way. For example, she has acted in several plays. Before she was nominated to be Secretary of Education by Governor Lujan Grisham, Dr. Trujillo was serving as the Interim Associate Dean for Research in the College of Education. One project in recent years that has been important to her is Educators Rising, an effort to recruit high school students who may want to become teachers. The students come from around the state to NMSU or to Albuquerque for a day of both cooperative and competitive activities. Teacher recruitment is one of her top priorities in her new position as well, since currently many teaching jobs in the state are unfilled. She is also working toward recruiting and training specialists at the elementary level, especially in math and science. I asked Dr. Trujillo what it will be like to have a Secretary of Education with a strong mathematics

background. About mathematics courses and curriculum: She believes that all courses, at all levels, should have these elements: challenge, reasoning, problem-solving, cooperation, and communication. About the students of New Mexico: She told me that she has met a lot of different mathematics teachers and students, at different levels and in different circumstances, and that she has great respect for individual differences.

*Not everyone needs to follow the same path. Just because you can do something doesn't mean you want to do it, or that you ought to do it.*

Here is the message she would like to send students who are considering studying mathematics beyond high school:

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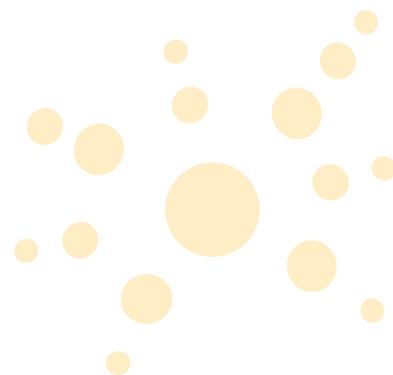
*“You can do this if you want to.*

*You can do this if you are willing to work at it.*

*Don't try to do it alone.”*

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Karen and Ben Trujillo have three children. One is a recent NMSU graduate, one is a current NMSU student, and one is still in high school.



# NEW CONSTRUCTION

## DON'T YOU, FORGET ABOUT ME



THE COURTYARD WAS RENOVATED IN 2019, WE USED THE OCCASION TO HONOR TWO GREAT WOMEN



Maribeth Olberding

**M**aribeth Olberding will be remembered as an inspiring educator, loving mother, and a witty friend with a radiant smile. She joined the NMSU math department in 2002, coming from the University of Louisiana-Monroe. Maribeth graduated from Baylor in 1991 with a degree in Math Education and then received her Master's degree

in Mathematics from the University of Texas at Dallas. Maribeth's love for teaching and for mathematics blended into a career as an assistant professor at New Mexico State University where she taught math education courses and mentored future educators. In addition to teaching, Maribeth volunteered at her daughters' school, was actively involved in Girl Scouts, and was a self-professed "dance mom." Although breast cancer took her from us on May 28, 2014, memories of Maribeth's smile, her quick wit, and her laughter will be with us forever.



Caroline Sweezy,  
courtesy photo

**N**MSSU mathematics professor Caroline Sweezy joined the NMSU math department in 1986.

Sweezy was a fundamental member of the analysis research group, an outstanding teacher and the main organizer of the "Great Southwestern Math Competition" for New Mexico high school students. She was also active in the Mathematics

Modeling Competition for undergraduates.

Sweezy graduated from the University of California, Los Angeles with a Ph.D. in mathematics. During her tenure taught calculus and undergraduate- and graduate-level mathematical analysis, participated in numerous campus programs and, most importantly, worked to ensure the success of her students. She was taken from us, November 6, 2010 after battling cancer.



# MATH AND DESIGN

## THE CREATIVE PROCESS

The Fall 2018 was the beginning of many visual changes occurring within the mathematical sciences department. The first newsletter was launched, and logo developed all thanks to Professor Robert Smits's passion and creativity for the department. Undergraduate graphic design student, Nancy aided the department on developing print and web designs for Fall 2018 and Spring 2019. She shares her thoughts on working for the department,

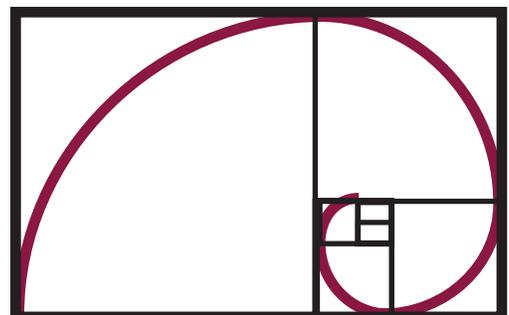
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*Designing for the mathematical sciences department has been a unique learning and creative experience for me. I was able to experiment with different types of platforms ranging from print and web design to logo development, illustrating graphics, and editorial design. This experience was different from past projects I've worked on because although mathematics is a language of its own and provides a vast library of iconography the challenge for me was not having the expertise on math subjects. As I began to research visual inspiration it was difficult to find examples of designs made specifically for mathematics. I did not want to design stereotyped imagery of what math is because in the beginning I was doing just that. As time proceeded I was exposed to math professions and topics I did not even know existed, due to this I was able to create*

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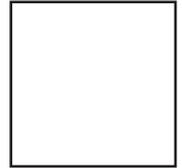


Coincidentally through her brainstorming process she discovered how both disciplines are connected, for instance, the golden ratio is a method used to develop a proportional and visually pleasing logo. Another example is, vector art is created using mathematical plot points that create a high-quality image that is not pixelated! The connections that exist between the two made her see design in a different way, she can say that she appreciates mathematics plenty more now.”





# MATHEMATICAL SCIENCES DEPARTMENT



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The department has been very fortunate in the past to have strong support, and this year it would like to point out two special gifts:

There was a charitable addition to the **Anna Schrufer Kist Endowed Scholarship**, and **Dr. Charles Swartz** generously established the **Charles Swartz Endowed Scholarship**, which is matched in part by Giving Tuesday Challenge Funds.



## RECOGNIZING SUCCESS

### NEWS HIGHLIGHTS

#### NMSU Alumnus Melissa Tomita Elected to the Casualty Actuarial Society's Board of Directors

Since her graduation from NMSU, Melissa (Nowalk) Tomita has been a valuable alumni willing to give back to her alma mater by mentoring actuarial science students. She has also been very productive in her career, achieving the Fellow of the Casualty Actuarial Society (FCAS) and CPCU designations. Melissa is currently the Financial Business Director at Nationwide Insurance in Arizona.



#### Undergraduate student James Lewis has been selected to be the recipient of the Dean of Arts and Science Undergraduate award for excellence.

