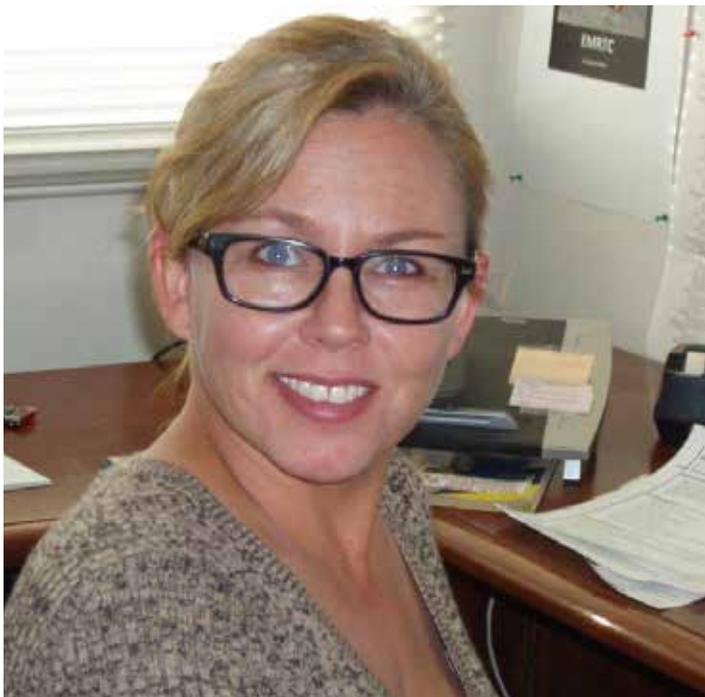


## Greetings!



*Colleen Guengerich*  
*Director of Advancement and Alumni Relations*

Greetings Techies!

We are experiencing another vibrant school year. Enrollment numbers are up again—2150—with 1617 undergraduates and 533 graduate students. While other schools in the state are cutting positions due to lowered enrollments, Tech's numbers are up. While you, our successful alumni, have long known about the little school on the Rio Grande, it appears the secret is out!

We are also entering a period of significant change. President Daniel H. Lopez has announced his retirement in June of 2016. The Board of Regents has engaged a national search firm to assist in finding his replacement. To date they've held several town hall meetings on campus to engage in dialogue with students, faculty, staff and administrators about our visions for the future.

The Office for Advancement and Alumni Relations is gearing up for our annual Alumni Fund campaign. We start this in November every year with a mailing campaign and a phone-a-thon. A dozen students give their time to reach out to alumni to gather donations. The proceeds from this campaign go to further the educational experiences of current students and to enhance the teaching and research capabilities of our faculty. If you can't give much, give what you can. Different national rating and rankings associations count the percentage of alumni who give. They don't count the amount that is given. In this manner, even the smallest donation matters. When you receive the call from our students, please feel free to engage them in conversations. Share your stories of your time at Tech, or encourage them with the tales of your successes after you graduated.

49ers was a great success and the Second Annual TECH Talks continues to grow. If you know of someone, especially a Techie, who would be a good presenter on scientific issues, please give us a call.

Fill out the reply card and let us know what you're up to. Did you get married? Have a baby? Switch jobs? Cure cancer? Retire? Raise championship roses? We want to know and so do your peers.

As always, we are here to serve you!  
Warmly,

Colleen Guengerich  
*Director*  
*Office for Advancement and Alumni Relations*  
*Executive Director*  
*New Mexico Tech Research Foundation*



# inside GOLD PAN

ALUMNI MAGAZINE

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Centennial Fountain, 2015

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New Mexico Tech is an equal opportunity/affirmative action institution.

# international students

by michael voegerl

Late in the evening of August 12th, I was standing in the Albuquerque airport with a “Welcome NMT Students” sign. It was my fifth trip to the airport in four days. I was tired and a little grouchy.

Why was I in the airport late in the evening? I am Michael Voegerl, Director of Student Affairs and the International Programs Coordinator. I was there to make sure that our newest students were met by someone who cared for them and wanted them to have a great first impression of NMT.

I have been lucky to have traveled outside of the country on several

occasions and I am always a bit nervous going to a new location. Airports are always confusing. Though I have traveled, I cannot imagine what it must be like to leave one’s home and fly half way around the world to start an education.

A smiling face (the grouchy left pretty quickly) is the least that I can do to help our newest students.

The international students are a community within a community. A large part of my job is to be at the center of that community. I have an extended family that hails from 31 countries and is 156 students strong. Do



Chen Yang Li

I remember all of their names? Of course not. Do I remember their faces? Absolutely. Do they know who I am? Definitely!

Nothing improves my day more than walking across campus and running into and doing the “Socorro handshake” with international students.

While international students are only about 7% of the student body, they are a growing population on campus. They are involved in all aspects of Tech life, from student government and engaging in Residential Life to petroleum research and raising money for the Nepal earthquake relief fund.

Most of our international students come from large cities in their home countries and Socorro tends to be a bit of a shock. Within a couple of days the international students are settled in and are doing all of the important things needed to get a great education here at Tech.

With each new cohort of international students Tech’s image spreads further across the globe. Our international student growth is due to our current students recruiting their friends and countrymen to come to Tech. There is no better way to market Tech than the word of mouth provided by our students.

I urge you to come to campus and sit under the trees between Fidel Student Center and Wells Hall for an afternoon and listen to all of the languages spoken.

Sure they are still talking about math and girls; they are, after all, Techies.



Kenneth Obi, Lin Wang, Yi Xuan

by makala hannagan

## new mexico tech's growing psychology department

The Psychology Department of New Mexico Tech is one of the smaller departments on campus. It has been steadily growing for a long time and is working with the Biology Department to help create the interdisciplinary biomedical engineering program. The department is also home to the Master of Science for Teachers program.



Dr. Frank Etscorn,  
inventor of the nicotine  
patch

Recently, the Psychology Department has shown even more signs of growth; former Professor and Dean of Students, Dr. Frank Etscorn, the inventor of the nicotine patch, returned to New Mexico Tech to teach classes.



Dr. Taffeta Elliott  
photo by Jerry Bruck

Another sign of expansion within the department is the hiring of two new professors — Dr. Taffeta M. Elliott, who joined New Mexico Tech in the fall of 2015 and Dr. Stewart Thompson, an experienced and well-published neuroscientist from the University of Iowa Carver College of Medicine.

A new hire in the spring of 2015, Dr. Thompson, has already made a positive impression on his students and his department because of his passion for teaching and because of the strong research that he has brought with him.

### about dr. thompson

“We hired Dr. Thompson because he clearly fits the strong needs of both the

Psychology Department and the school,” according to Dr. Mark Samuels, Department Chair of Psychology, Education, and MST Associate Professor for the Psychology Department.

According to Patience Lyman, who was part of the interview and hiring committee, Dr. Thompson was an almost suspiciously outstanding candidate. “He was, of course, a highly qualified candidate, having researched under well-known names in the field... We almost thought he was too good to be true.”

One of the reasons that Dr. Thompson stood out so much among the other candidates was his genuine love of teaching.

“I was particularly drawn to his passion for teaching,” Lyman added. “He expressed a sincere commitment and enthusiasm to educating students, one that made him stand out as a candidate. He has so much experience in research, but he also understands the

pedagogy behind effective teaching, and he expressed a strong interest in student success. He was applying for our position, leaving his prestigious research job because of his passion to work with students.”

Dr. Thompson began teaching in the spring 2015 semester and his passion for teaching is infectious.



Dr. Stewart Thompson

“Students have enjoyed his classes and labs,” said Lyman. “Dr. Thompson gives students a lot of freedom in designing their own labs, and many have expressed appreciation over this. I have helped with some of his labs, and they have been interactive, interesting, and relevant to the topics of study. Students seem happily engaged in labs, and his class potluck towards

the end of the semester fostered a sense of family in the classroom.”

The class potluck was one of the more “fun” labs that students engaged in during the PSY 301 “Perception” course during this past spring. The class potluck was a lab that examined the human ability to distinguish flavors and was a delicious way to explore the gustatory system.

Dr. Thompson is not only a wonderful teacher, but he is also a valuable resource

for students entering the medical profession, as Lyman points out: “In a previous position, he helped review potential medical students’ applications, so he knows the ins and outs of that process. Dr. Thompson was also a mentor to a number of medical students participating in summer research internships at the University of Iowa.”

### dr. thompson's research

Before coming to New Mexico Tech,

Dr. Thompson taught and researched at the University of Iowa Carver College of Medicine (UI-CCOM): a university with one of the best vision research programs in the country. Dr. Thompson was employed as a researcher in the all-encompassing pursuit of curing blindness. At UI-CCOM, he helped develop treatments for the visually impaired and spent enough time there to see the results of the treatments on real patients. At the University

of Iowa Carver College of Medicine, his specific research was on abnormal irradiance responses, or how detection of light in the eye relates to the regulation of physiology and behavioral state.

Lyman shared that Dr. Thompson already has started developing new research here at New Mexico Tech. “Dr. Thompson brought collaborative partnerships with him to Tech. He will be working with some researchers in Florida who will supply the lab with special breeds of mice for his research. Much of his research is in vision, and this is a hot area for funding right now.”

Dr. Thompson has multiple topics that he is in the process of researching. One interesting focus is his aim to find hard evidence to prove the connection and provide strategies to lower the risk of breast cancer.

The connection between breast cancer and artificial light depends upon the “dark hormone,”



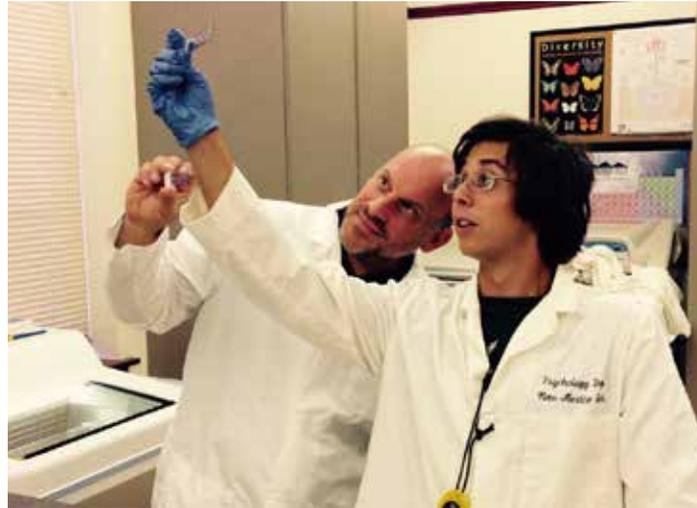
Dr. Thompson explains the robot stereotaxic, which is used to drill holes in the skull of a mouse: electrodes placed in the holes can be used to record brain waves, and examine stages of sleep.

endogenous melatonin; it is only produced when the environment is dark, meaning that the common practices of working late into the night or using electronic devices to fall asleep can actually have long-term damage, such as the development of breast cancer.

According to Dr. Thompson, “women with eye disease — where they have much reduced sensitivity to light and have more natural melatonin, because the light isn’t affecting them — [have a much lower] risk of breast cancer than the rest of the population. This would suggest that artificial light is one of the biggest risk factors in breast cancer.”

### the connection between artificial light and breast cancer

In the human retina, there are light-sensitive cells that are sensitive to certain blue wavelengths of light. These particular blue wavelengths, similar to the blue skies that we see during the day, activate



Dr. Thompson and NMT undergraduate Ethan Contreras examine microscope slides of mouse eyes they have prepared to look at the effects of genetic eye disease.

the “zeitgeber,” or the “natural and external time-giver” cue. When the light sensitive cells are activated by the blue wavelengths, they send a signal to the suprachiasmatic nuclei (SCN). The SCN is the home of the circadian system, or the body’s biological clock. The SCN will send a signal to deactivate the pineal gland, so that endogenous melatonin is not produced. If the light sensitive cells do not detect the particular blue wavelengths, then the signal sent to the SCN will result in the activation of the pineal gland, meaning that endogenous melatonin is produced.

What all that comes down to is that the light sensitive cells pick up signals from artificial light, signaling the SCN to not turn on the pineal gland, meaning that the endogenous melatonin will not be produced.

The effects may be subtle at first, but decreased production of endogenous melatonin over time can become “a big deal,” according to Dr. Thompson. Each time a cell copies itself, there is a risk of becoming a cancer cell. The melatonin we make in the pineal, reduces the rate that breast cells

regenerate at night. If you take melatonin away then the cells replicate more than they normally would. Simple math means that this increases risk of developing cancer cells in the breasts.

According to Dr. Thompson, humans should experience ten hours of dark hormone production, but due to artificial lighting, most of the population only experiences approximately seven hours of production.

The news is rather disturbing, especially considering the amount of artificial light that many people are exposed to on a daily basis. There is hope that can come with simple behavioral adjustments.

### the hope

Interestingly, the connection between artificial light and breast cancer may be even more concerning than genetic predispositions. Research shows that loss of sensitivity to light is protective against breast cancer in individuals

with complete blindness. Presumably, some of these ‘cancer free’ subjects also carried genetic risk factors for breast cancer. It would be great if simply reducing the amount of overexposure to artificial light would diminish the chance of developing breast cancer in high-risk individuals.

“Genetic risk is huge — BRCA1, BRCA2, those breast cancer risk factor genes —but beyond that, the environment is a big deal,” Thompson stated. Dr. Thompson added that “someone who has those risk genes could very easily control their environment to reduce risk; turn off the lights in the evening, or use red light, which doesn’t affect the system that suppresses the melatonin that much.”

### the takeaway

Dr. Thompson, Dr. Elliott and Dr. Etscorn are symbols of the growth and expansion of the Psychology Department. Students have the chance to take many different classes with any of these professors. Dr. Thompson

will be teaching PSY 362, “Animal Behavior” and PSY 389-01, “Cell & Molecular Neuroscience.” Dr. Elliott will be teaching PSY 121, “General Psychology” and PSY 389-02, “Psychology of Language,” which is her specialty. Dr. Etscorn will be teaching PSY 212 “Drugs & Behavior.”

Something wonderful about the Psychology Department as a whole is that the class sizes are small, allowing for more developed professor-student relationships.

“With the addition of [Dr. Elliot], our second new professor this fall, the department is offering a variety of interesting classes that provide a strong foundation in Cognition, Perception, and Neuroscience,” according to Lyman.

Lyman stated that the Psychology Department has “many exciting research opportunities at the undergraduate level, which is something not a lot of schools can offer, particularly with the

same degree of individual professor-student interaction. Neurological/behavioral research on mice and frogs will begin soon in the Animal Care Facility, and we offer students the opportunity to conduct independent research in such fields as cognitive, perceptual, developmental, and social psychology.”

There are also research opportunities for students seeking internships: Dr. Thompson currently has two students who worked as interns for him this summer.

The Psychology Department is also able to offer many other opportunities to work directly in the research that is happening within the department.

Through the hiring of new professors like Dr. Thompson, Dr. Elliott, and the return of Dr. Etscorn, the Psychology Department is expanding and becoming a hub of fantastic learning and research opportunities for undergraduate students.



**NEW MEXICO TECH**  
**Ranked #2**  
**Best Public**  
**University for Return**  
**on Investment**  
*Wall Street Journal, 2014*

**NEW MEXICO TECH**  
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**Best Value Colleges**  
*USA Today, 2014*

**NEW MEXICO TECH**  
**Ranked #3**  
**Top Public School**  
**Regional Universities**  
**(West)**  
*US News, 2014*

**NEW MEXICO TECH**  
**Ranked #8**  
**Top 10 Engineering**  
**Programs, Nationally**  
*USA Today, 2014*

**NEW MEXICO TECH**  
**Ranked #16**  
**Top Master's**  
**University**  
*Washington Monthly, 2014*

# where are they now?

kalee honeyfield

by magella honeyfield

## the story of a small town girl at a tech school

Kalee Honeyfield, an alumnus of New Mexico Tech, attended from 2005 to 2009 and received her bachelor's in biology. Like many students, she had to fight to stay and finish. The realities she faced as a child, guided by her father, paved the way for her to find her way at Tech and go on to get her doctorate in pharmaceutical sciences.



Kalee, 2014

## where it all began

Kalee's story began the summer she turned seven. In her father's eyes, she had finally come of age and could begin to contribute to the family business. He is a part-time welding and

building trades teacher at the local high school, as well as a part-time contractor. Her mother is a retired English teacher and owns a dance studio.

Growing up with a dad who felt that a woman could do anything a man could do shaped Kalee's childhood and her work ethic as an adult. A typical weekend or school break consisted of participating in construction jobs ranging from pouring concrete to building pens at the family's ranch. Kalee also took dance lessons at her mother's dance studio from age three until she graduated from high school. On top of working alongside men, Kalee was also expected to clean up like a lady and perform in annual dance recitals.

"I had a very interesting childhood and was very lucky in that I had parents who were highly involved in my upbringing," reflected Kalee.

Kalee vividly recalls her first day on the job; it was a long hot day tarring the roof of her mother's dance



Raton School of Dance  
Dance recital 2003  
Claire, Maggie, Kalee

studio. The day started early and the excitement began when she got to put on "work clothes" and, soon after breakfast, climb a forty-foot ladder. It was such an adventure until she realized what she was really in for. Kalee said that after the first hour or so, she remembers thinking, "Okay, I'm ready to go home."

She was not thrilled to find out that the day had just begun. Upon finally arriving home that evening, she was marched to the garage for a paint thinner bath: "I probably got more tar on myself than on the roof," Kalee recalls. She wasn't

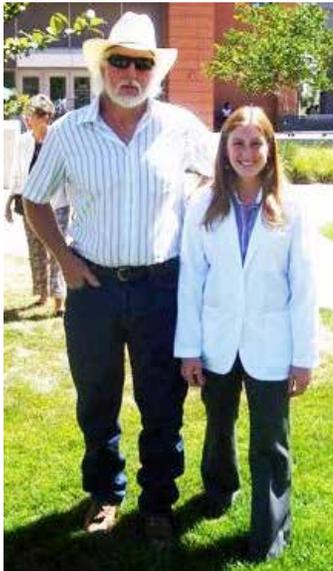
delighted to learn this was just the first of many roof-tarring jobs that summer.

Everyone in the Honeyfield household "earned their meals," as her dad would say. Soon enough, her dad's construction crew consisted of his three daughters. As an adult, Kalee often reflects upon the time she spent working alongside her dad and sisters.

She said, "I will never forget my dad telling me 'See, don't you want to get a good education and career so you don't have to do this the rest of your life?' The hard, labor intensive work was motivation enough for me to do just that." As a pre-teen, Kalee dreamed of going into the healthcare or medical field, but also knew that she did not want to be a physician. In the seventh grade, she began working for a local veterinarian clinic on the weekends. Her dad requested that in addition to her duties of keeping the kennels clean, she be involved with all medical

## where are they now?

kaylee honeyfield



White Coat Ceremony  
Dad and Kalee

procedures, no matter how gruesome. He wanted to be sure that Kalee understood the full responsibilities and duties of a veterinarian. Kalee, of course, loved her responsibilities and continued to work at the clinic through high school. Kalee added, “My boss and his wife were like my second set of parents. These experiences really shaped who I became as a person, and I think really helped develop my drive to want to achieve a postsecondary degree.”

Kalee said that while growing up, she was disdainful of what was expected of her, but as an

adult she now realizes it was all worth it. While reflecting on the past, she mentioned that she had two huge influences: “My father, who always pushed me to be better and to challenge myself, as well as my grandmother, who was an incredible role model and really taught me how to be an independent, hard-working woman.”

### trek to tech

When it came to deciding where she would pursue her undergraduate degree, Kalee stumbled across New Mexico Tech thanks to her father. One of his high school students, Jerimiah Robbins, worked for him



High School graduation,  
2005

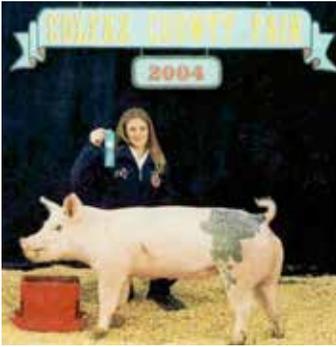
and went on to study at Tech. Her father thinks a lot of him, as does Kalee. When on the job, Kalee recalls, Jerimiah bailed her out of trouble on multiple occasions, “He was like the big brother I never had.”

While standing in line at Tech for freshman registration, another student began quizzing Kalee, inquiring about what biology classes she had taken. He began to rattle off multiple biology classes he had already completed. The look on Kalee’s mother’s face made it clear that she was shocked and a little concerned. Even though Kalee came from a small high school in a rural area, she assumed that because of her class ranking, she would come into Tech with no problems. Little did she know, she would be fighting and struggling with Tech’s steep learning curve for a few years. Kalee recalls not being quite as successful as she had been in high school, but eventually, after considering transferring schools a couple of times, she finally got the hang of

how to study.

She remembers a specific time that she wanted to transfer to another school. It was the spring semester of her sophomore year and she had taken too heavy of a course load. Most semesters she took 18 credit hours but this specific semester two of her classes were overwhelming. “I will never forget calling my dad to tell him I needed to transfer. I explained to him that I was at rock bottom and just not succeeding. He, of course, told me not to give up just yet,” Kalee remembers. Needless to say, she managed to raise her grades and continue her trek at Tech.

Kalee attended Tech from 2005 to 2009 and completed her undergraduate degree in biology. She said: “I feel that the rigorous courses and education I received really provided me with the skills needed to complete my doctorate in pharmacy. Attending New Mexico Tech was probably one of the best decisions that I made in terms of my education.” While



Best in Showmanship

attending Tech, Kalee was involved with the Women's Soccer Club and was president for about two years. She emphasized that the friends she made while attending Tech also contributed to her success. She recalls that her tight knit group of friends forced her to get out of her shell, which has been a huge help to her personal life and career.

### adventures at the university of colorado

In pursuit of her almost lifelong dream, Kalee applied to multiple veterinarian schools, but upon completion of her undergraduate degree had not been accepted to any of them. She then decided to attend the University of New Mexico for a one-year training program

in medical laboratory science. She applied to veterinarian schools for a second time but, this time, also applied to pharmacy schools. Immediately following the completion of the one-year program at UNM, she was accepted into the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences (UC Denver).

When asked how she felt about not getting into veterinarian school, Kalee said, "I could hear my Dad in the back of my mind telling me to keep trying. However, it was a sobering moment for me when I realized my original plans were not going to work out. That time in my life has really contributed to me becoming a much more flexible person when it comes to adjusting goals; everything happens for a reason."

Kalee attended UC Denver from 2010 to 2014, where she gained the necessary skills to be a competent healthcare provider. In the final year of pharmacy school, Kalee was required

to do six-week clinical rotations at assigned locations. During Kalee's first rotation at Yampa Valley Medical Center in Steamboat Springs, Colo., her preceptor had a huge impact on her career by encouraging her to apply for a residency program. "He was only part of my life for a short period of time, but his belief in me is the only reason I am where I am today," Kalee said.

Residency training is a wonderful way to begin a career in clinical pharmacy. These programs are all over the country and allow a resident to perform as a licensed practitioner as well as train under the supervision of an experienced preceptor. Residency training consists of one or two postgraduate years. Postgraduate year one offers more generalized training, which exposes residents to a broad range of clinical situations. Postgraduate year two emphasizes a specific area of interest which leads to specialization in that field. The first must be completed to qualify for the second.

After completing one or two years of training the practitioner can sit for board certification.

"The quality of education I received at UC Denver has proven to be an invaluable asset during my residency training," she said.

### residency training

Kalee now finds herself completing post-graduate year one pharmacy residency program at the Veterans Affairs (VA) Sierra Nevada Health Care System in Reno, Nevada. The unique program focuses on rural health, which Kalee is passionate about. She would like to return to a small community because many people from her own community had a positive influence on her life. The program also consists of several different rotations in clinical areas, but is primarily focused on outpatient-type settings rather than inpatient.

Kalee's research project is targeted at quality improvement within the VA hospital in

## where are they now?

kaylee honeyfield

Reno. It focuses on the anticoagulant drug, warfarin, and antiplatelet therapy drugs that work to prevent the clotting of blood – also known as anticoagulant drugs – and therapeutic drugs, like aspirin or Plavix (antiplatelet therapy drugs.) The goal of her project is to reduce non-fatal and fatal bleeding events by avoiding this combination of therapies.

Kalee's project built on another project which was started by a former year one resident. During the first phase of the project, a computerized patient medical record system was utilized to generate a report to identify patients with active prescriptions for both an antiplatelet agent and warfarin.

The report will be used to filter patients using disease classification codes and CHADS<sub>2</sub> scores (a clinical prediction rule for estimating the risk of stroke in patients with irregular heartbeats), resulting in exclusion of those patients in whom combination therapy is consistent with

the current guidelines. Disease classification codes are the standard diagnostic tool for epidemiology, health management and clinical purposes.

Kalee is now the primary investigator of the study. At this stage in the project, she is doing a comprehensive review of patients identified in



Senior picture from University of Colorado

the report to determine whether combination therapy is appropriate, considering patient-specific factors. If the therapy is deemed potentially inappropriate, a pharmacotherapy recommendation is made to appropriate providers.

The outcome is then determined by assessing the reduction of bleeding and thrombotic event (formation of blood clots) rates in patients, as well as the number of recommendations by pharmacists that are implemented.

Upon completion of the residency program, Kalee will be able to manage a VA community-based outpatient clinic. Her primary role will include direct patient care with a focus on chronic disease states such as diabetes, hypertension, and hyperlipidemia. She will also be an information resource for providers and processor of medication orders for the clinic.

Kalee remarked, in an excited tone of voice: “The most rewarding part is being able to make positive interventions and improve patients’ medication regimens. It is also extremely motivating when people come back to express gratitude and tell me how much better they feel, especially patients with diabetes.”

She is also very passionate about motivating patients to take charge of their health, and is a huge advocate of making lifestyle changes in conjunction with medications. Needless to say, Kalee feels that UC Denver prepared her to be a competent and confident provider.

### the pharmacist

Kalee recently accepted a position at the VA's community based outpatient clinic in Susanville, Calif. The clinic is small and serves about 1000 veterans. The clinic has been lacking a pharmacist for quite some time, so Kalee will be starting with a clean slate. Kalee is excited to have the opportunity to make the clinic her own.

“Since I'm staying with this VA, I may continue following the patients in my project to see the outcomes of our interventions,” she said. Kalee feels that it is hard to determine where she'll be in the next 10 years because of the amount of opportunities available.

“I could see myself staying with this facility because of that, but I could also see myself moving back to New Mexico and maybe joining the VA system there. The opportunities are really endless in the world of pharmacy,” Kalee said. “I am proud of the fact that I have joined a profession that is ever-evolving and holds so many opportunities for growth as a person and as a provider. I am also proud that I have the ability to make a difference in so many veterans’ lives.”

*Writer Magella Honeyfield is a current New Mexico Tech student and youngest sister of Kalee. The middle sister, Claire, is also a New Mexico Tech graduate.*

*Do you know of an outstanding Techie that deserves to be featured in Gold Pan?*

*Do you have comments or suggestions?*

**Make yourself heard!**

Email [alumni@nmt.edu](mailto:alumni@nmt.edu).

This is your magazine; we want to hear from you!

# Perú and Machu Picchu Adventure

**May, 13-22 2016**

Tour Host and Organizers:

William X. Chávez, Jr. (Class of '77) [wxchavez@nmt.edu](mailto:wxchavez@nmt.edu)

Theresa Kappel, Office of Alumni Relations [tkappel@admin.nmt.edu](mailto:tkappel@admin.nmt.edu)

This is the second offering of a Tech “Alumni and Friends” travel adventure to Perú, the Sacred Valley, and the World Heritage site at Machu Picchu. Our itinerary begins in Lima on the 13<sup>th</sup> of May, and ends in Lima on the evening of the 21<sup>st</sup> of May.

Participants are responsible for their travel to and from Lima, meals and alcohol. This is not the usual “guided tour” trip – there will be plenty of time for individual exploring and sight-seeing, with suggestions for personal adventures and relaxing activities!

**\$1,550 with a non-refundable deposit of \$350 by 15<sup>th</sup> March, 2016.**

## **Includes:**

- Air travel, Lima-Cuzco-Lima
- Lodging as double-occupancy, single rooms for a small added cost
- Train tickets: Ollantaytambo to/from Machu Picchu
- Admission tickets to ruins and Machu Picchu
- Bus transfers as a group along the Sacred Valley

# faculty spotlight

dr. liliya frolova

by angelo santomenna

Dr. Liliya Frolova is an Assistant Research Professor of Chemistry at the New Mexico Institute of Mining and Technology. She has pursued a few different careers during her life. She received her bachelor's and Ph.D. in organic synthesis, but has focused her research on medicinal chemistry after coming to New Mexico.



Dr. Liliya Frolova

At New Mexico Tech, she is trying to synthesize compounds to inhibit some of the deadliest organisms present today. She oversees a lab of five undergraduates and one graduate student who have great interest in applied chemistry. She loves to teach and continues to drive her students to succeed and gives some of the best lessons on how and why chemistry works.

Currently, Dr. Frolova, with the help of Dr. Snezna Rogelj, is working on patenting a series of organic compounds, which are effective against cancer, bacterial, and fungal strains.

## kazan, russia

Frolova was born in Kazan, Russia. Her life has always involved chemistry. Her mother, Professor Elvira Batyeva, would take Frolova to work with her. When Frolova was with her mother in the lab, she was entertained by the graduate students, and would watch her mother rush through the lab trying to solve problems.

Dr. Frolova grew up enjoying science. After high school she looked deeper into her own interests in science, and decided to follow her mother's footsteps and become a well-rounded chemist. She attended Kazan State University, which was an excellent school for chemistry.

She received her master of science degree in organic

chemistry in 1988. Then, four years later she received her Ph.D. in chemistry; where she would continue her academic life and go on to earn her first post-doc in Germany.

## post-doc in germany

In 1992, Dr. Frolova pursued her post-doc at Technological University in Braunschweig, Germany, which had an academic culture similar to Kazan State University. She conducted her research on making new metallic catalysts under the watchful eye of her research mentor, Professor Reinhard Schmutzler.

Her research involved phosphorus and creating inorganic salts from different transition metals like copper. This process was very hard to perform and could be very dangerous.

In Germany, professors were strict with their graduate students on how research was conducted. "Doing research in Germany was a tough accomplishment," Frolova

said. She enjoyed working with Dr. Schmutzler, as he was full of so much knowledge; it was an experience of a lifetime. Frolova said, in a strict tone, "If the professors could not re-run the reaction themselves, the graduate student would have to start from scratch and find their mistake."

This demonstrated the quality that Germany required for chemistry in particular.

## arbuzov institute in kazan

After her time in Germany, Dr. Frolova went back to Kazan to work with the Arbuzov Institute of Organic and Physical Chemistry as a senior researcher in 1994. She worked with metal-phosphorous compounds. Dr. Frolova began to mentor her own undergraduate and graduate students. Frolova continued to collaborate with the Technological University in Germany, but this did not last long, as she was offered a research position at a biotechnological company

called Intelbioscan, Ltd. which allowed her to explore her passion in chemistry.

### intelbioscan, ltd.

In 1999, she got the opportunity to work with synthetic chemistry and focus on biological active compounds at Intelbioscan, Ltd. This new career moved her to Moscow, but she continued to work with the Arbusov Institute to ensure that the students she hired were not abandoned by her. She left the Arbusov Institute in 2001. Dr. Frolova oversaw different types of synthetic research groups at Intelbioscan, Ltd and worked closely with major pharmaceutical and agricultural companies. She enjoyed what she was doing and later became a research director for Intelbioscan, Ltd.

### moscow, russia

Dr. Frolova met her future husband, Dr. Igor Magedov, in Moscow. He was a medicinal chemist who worked at the Timiryazevskay



Sergey and Kate with Dr. Magedov and Dr. Frolova.

Agriculture Academy in Moscow after receiving his PhD from Mendeleev University. Dr. Magedov researched the chemistry of biologically active heterocyclic compounds. He created some of the most interesting biological active compounds that continue to be researched.

Drs. Frolova and Magedov were blessed with their first child in 1998, a daughter, and later a son. Their children were raised in Moscow for their early childhood, while their parents continued to pursue their interests in chemistry at the Academy. Their children were surrounded with chemistry

just like Dr. Frolova was in her childhood days.

In 2005, Dr. Frolova joined Timiryazevskay Agriculture Academy to return to her research in organic chemistry. She missed the lab after being in charge of a company. Frolova was back in the lab and academics. She was in charge of the organic chemistry labs and was the supervisor of undergraduates who sought to do research. In 2007, Dr. Magedov moved up to Associate Professor at the Academy and received an opportunity to work closely with Dr. Alexander Kornienko in New Mexico rather than

staying in Moscow and continuing his work with the Academy.

Dr. Magedov became a research professor at New Mexico Tech in the Chemistry Department. He continued to work on drug discovery to inhibit some of the most lethal bacteria strains and cancer cell lines. Magedov had a gift for medicinal chemistry, which gave him the passion for what he did. Dr. Frolova knew she was experienced in all types of chemistry and did not hesitate to take her expertise to New Mexico.

### new mexico tech

Dr. Alex Kornienko helped Magedov and Frolova settle in Socorro knowing that it would be a major



Dr. Alex Kornienko

## Faculty spotlight

dr. liliya frolova

cultural change. When Kornienko and Magedov started to work in the lab, they encountered some problems which lead to Frolova's involvement. Her experience in synthetic chemistry was valued. Dr. Kornienko brought her on board as a special student "who was really a post-doc with no pay," said Frolova, so she could get back into the lab and work. Frolova said, "This got me excited, since staying at home being a housewife was not the life I wanted to live." Liliya was able to help solve problems that her husband and Dr. Kornienko needed help with.

The main problem required a high-level of expertise in applied chemistry. They were wrestling with a certain oxidation process, and Frolova was able to help solve this problem. "Chemistry is an interactive process, so if you don't put your brain and soul into your work the chemistry will not work. Also, I like to manipulate nature so I like to force things where they don't go naturally," Dr. Frolova said.

In 2012, she became a visiting professor at New Mexico Tech. She

always loved to teach, and Tech was in need of a professor to teach upper division chemistry. She loves to drive students to learn a challenging science and gain greater proficiency in the lab. When Dr. Kornienko left New Mexico Tech, for Texas State University, she assumed his position and helped the rest of his remaining graduate students finish their theses.

After several years of research, in 2013, Dr. Igor Magedov passed away from colon cancer. Dr. Frolova then moved into his position as a research assistant professor. Her

dream is to create a library of anticancer drugs that could be cost-effective, not easily resistant, and easy to use for people in need of cancer treatment.

Dr. Frolova and Dr. Snezna Rogelj oversee an interdisciplinary group called Chemical Biological Screening Collaboration (CBSC), which consists of a large group of young motivated scientists. The focus of this group is to teach undergraduates how to conduct and get involved in research. This group formally started in 2008 and conducts research of organic compounds. New Mexico



Kailee Zingler is running a reaction to help promote the compound on Anti-Cancer with Chanelle Salazar, while Dr. Frolova assists in this process.

Tech student researchers have the utmost respect for and have gained so much knowledge from these two extraordinary professors.

Dr. Frolova continues her organic chemistry research of the activities against the structure and to look into different arrangements of these compounds to promote better activity. Her personal goal is that one day, people will not have to worry about cancer being deadly. Liliya said she feels like a medical doctor in a way. She is the one behind the scenes continuing to look for drugs that could help save peoples' lives.

Kailee Zingler, a student who has been a part of Dr. Frolova's lab for almost a year and a half says that she enjoys being a part of this chemistry environment with Frolova.

"I think Liliya is the most enthusiastic person I have ever met. She does take pride and joy in her students' successes as well as her own," Kailee said. "It's amazing how she is a professor by day, a mother by evening, and a researcher

by night. It is just so incredible how she has this solid routine with her life and makes it look easy."

Dr. Frolova's passion for her students is tangible and she always pushes her students to the limit. She knows most students in her lab strive to understand the library of compounds which are named after Frolova's late husband, Igor Magedov, IM7, which is a different chemical makeup than IM6. She takes pride in her students. She wants students to understand that you have to place your mind, heart, and soul into the lab or else you're just going through the motions, and no progress will be made.

Dr. Frolova continues to research medicinal chemistry which she began with Magedov and is making major contributions in the creation of alternative options for future chemotherapy patients. Frolova and Rogelj have put great effort and time into these compounds.



"Dr. Frolova's passion for her students is tangible and she always pushes her students to the limit."

Chanelle Salazar is setting up a column to separate a new compound of possible anticancer activity.

# calendar of events

november through may

*The office for Advancement and Alumni Relations will be planning several regional events and other events in the coming months. We will be sending out information as soon as it becomes available.*

## DECEMBER

- 5 Christmas Electric Light Parade, and Luminarias on the Plaza Art Stroll



- 8 Alumni and Network Reception Roswell, NM
- 9 Alumni and Network Reception, Artesia, NM
- 10 Alumni and Network Reception, Carlsbad, NM
- 12 Mariachi Christmas- PAS



## JANUARY

- 27 Alumni and Network Reception, Santa Fe, NM
- 29 Street Corner Symphony-PAS



## FEBRUARY

*Look for us at the Arizona Mineral & Fossil Show in Tucson*

*Look for us at SME in Phoenix*

*Hooking Up With The Second City-PAS*



- 25 MarchFourth! Marching Band- PAS

## MARCH

- 10 State St Ballet's "Carmen" – PAS



- 15 New Mexico Science Olympiad Finals



- 26 Socorro Community Fishing Derby



## APRIL

- 1 New Mexico Science and Engineering Fair



- 1 Barrage 8- PAS
- 15 Cirque Zuma Zuma –PAS



## MAY

- 14 Commencement



# research: biology

dr. snezna rogelj

danielle turner

*Dr. Snezna Rogelj is a Professor of Biology and the current Biology Department Chair at the New Mexico Institute of Mining and Technology (NMT). Rogelj is passionate about fostering new medicinal discoveries while mentoring a countless number of students in the pursuit of their own careers. Rogelj's unexpected journey as a budding scientist helped mold her into the inspiring biologist she is today.*

*a behind-the-scene glimpse*  
“The most interesting thing about me is my hair-piece,” she joked as I explained to her my interest in learning the behind-the-scenes details that led to her successful career. One look into Rogelj’s office on the



Dr. Snezna Rogelj

third floor of the biology department was all it took for me to know just how fascinating and unique of a person Rogelj might be. Upon knocking on Rogelj’s door, I was greeted with the usual warm hello, an invitation to have a seat and an apology for the “mess” in her office. This apology, coupled with her hair-piece anecdote, perfectly highlighted Rogelj’s sense of humility.



Snezna Rogelj in her office at Tech

Once inside Rogelj’s office, I was rendered speechless. Covered in dense vines and brilliantly green plants, her office resembles a jungle — a hideaway in one of the most unexpected places. These beautiful plants, combined with the presence of the ethnically diverse décor— such as African wood-carved statues, Buddha figurines, and

Oriental pictures— further emphasize Rogelj’s one-of-a-kind character.

*the beginning: life in slovenia*  
Rogelj was born in Ljubljana, Slovenia; when she was a teenager her family moved to the United States.

With some struggle, Rogelj overcame the initial language barriers and after completing high school in three years, was offered a scholarship to attend Ohio Wesleyan University. While she enjoyed Ohio Wesleyan University, she decided to transfer to the more affordable Ohio State University after one year.

Surprisingly, Rogelj’s first experience as a scientist began with astronomy and not biology. “I was incurably curious about the universe around me, how it started, how it would end,” she explained. While at Ohio State, Rogelj worked as a Teaching Assistant in the astronomy department for two years. She graduated, one of two women among 300 male Physics majors,

with her Bachelor of Science in Physics and emphasis on Astronomy in 1976. Smitten by neuroscience in her last year as an undergraduate, Rogelj entered the world of biology through a most fortuitous research technician job in the Department of Hematology at Ohio State University.

“She changed my life,” Rogelj explained when describing her experience of working with Sue O’ Dorisio, PhD, a young assistant professor, who had hired her in spite of Rogelj’s complete lack of any chemical or biological knowledge. Physically petite, Dr. Sue inspired Rogelj in ways that extended far beyond the scope of science for she not only ran the hematology research lab in which Rogelj worked, but also taught medical school classes, was a mother of three little ones and was actively working toward her own MD degree. Sue left a lasting impression on Rogelj, personally and professionally. “I fell in love,” Rogelj

fondly recalled, “with biochemistry, I believe, because I admired Sue so much.”

In 1979 Rogelj moved from Columbus, Ohio to Boston, Massachusetts, to pursue her doctorate in Biochemistry. She worked as a graduate research assistant (RA) in the Department of Biochemistry at Boston University School of Medicine. Her PhD in Biochemistry was completed in 1985 with a dissertation entitled: Action of Retinoic Acid and cAMP in the Differentiation of F9 Teratocarcinoma and B16-F1 Melanoma Cell Lines. Rogelj recalled that it took her years before she could see a sign or a billboard mentioning anything about summer camps without cyclic adenosine monophosphate “cAMP” jumping out at her. “My thesis title does not even mention it, but by the time I was finished with my PhD, I was an expert cloner,” Rogelj proudly recalled.

### post-doc years

Cloners were a precious commodity; Rogelj was offered many a postdoctoral position and accepted one at the Whitehead Institute at MIT in Cambridge, Massachusetts with Dr. Robert (Bob) Weinberg, an indisputable “god” in the field of cancer research. Bob was interested in the genes and the biochemical pathways that are abnormal in cancerous cells; Rogelj was again involved with growth factors and various intracellular messengers that they elicit. Her cloning expertise proved useful in converting some normal growth factor genes into oncogenes, genes that cause cancer, as well as in the particularly impactful cloning of the Retinoblastoma gene Rb, the very first tumor-suppressing gene ever to be discovered.

### adventures in india

In the meantime, Rogelj met her Indian husband, Vivek Dhawan. Vivek received his PhD in Electrical Engineering at MIT but has been doing



Snezna Rogelj and Vivek Dhawan

astrophysics and radio astronomy ever since.

Rogelj’s first job appointment was as a lecturer at Harvard Medical School. She was affiliated with Dr. Judah Folkman at the Department of Surgical Research, where her work continued to focus on the role that deregulated growth-factors play in tumorigenesis, neovascularization, and the metastatic spread. A year into her work at Harvard, Vivek expressed his wish

to move to India. “If you want to make a difference in life, you don’t do it where it’s easy,” Vivek felt strongly and Rogelj agreed. In 1989, she and Vivek moved to India.

In India, she accepted a job as a scientist for ASTRA Biomedical Research Center in Bangalore. Rogelj’s work, at ASTRA, involved a variety of projects ranging from genetically engineering human proteins into yeast, to studying a gruesome

parasite that invades human muscles and brains. Much fun and some successes were had during those three years in India.

### transition to new mexico

In Bangalore, Vivek himself worked at the Raman Institute but the couple decided to trek from India back to the United States. He was offered a job at the National Radio Astronomy Observatory (NRAO) in Socorro, New Mexico. “I never thought I’d end up in such a small town,” she says, “but it was perfect for our two little ones.”

In 1993, Rogelj took a job as a Research Associate with Dr. Larry Sklar in the Department of Pathology at the University of New Mexico (UNM) Medical School in Albuquerque, New Mexico and became a Research Assistant Professor of Pathology at UNM Medical School in 1997. While at UNM, her work focused on the molecular mechanisms of leukocyte target recognition in the human immune and inflammatory

responses. She worked with flow cytometry, where she discovered a signaling mechanism that regulates an inflammatory response with possible consequences in the treatment of cardiac arrest and HIV patients.

One fall day in 1997, Dr. Smoake, a Biology Professor at NMT, stopped to talk with Rogelj while buying blueberries. Dr. Smoake was familiar with

opened tenure track Assistant Professor position in the Biology Department at NMT. Having never considered an academic career but, wishing to remain closer to her two small children, Rogelj decided to apply.

### new mexico tech

Only a month after accepting the Assistant Professor position, Rogelj



Snezna Rogelj with students in the biology lab

Rogelj’s career as a scientist and strongly encouraged her to apply for the newly

discovered herself to be expecting her third child. Apparently, she was the

first faculty member in the history of the NMT to continue working through her pregnancy and childbirth. In fact, she gave birth to her son on a Monday and came back on Tuesday to deliver her lecture as scheduled. “Eh, we were used to it by then,” she says dismissively.

For all these and other potential diversions, Rogelj held on and progressed up the academic ladder. As an advisor to both undergraduate and graduate students, she supervised over thirty students in their achievement of Master’s degrees, and has served as a thesis committee member or co-advisor for an even greater number of students. Her multitasking is illustrated by her receiving the title of an Associate Professor in four years and a full Professorship after four more years. Both of these steps usually take quite a bit longer. She says, “I was lucky.”

Rogelj is also the founder of an interdisciplinary collaborative drug discovery research group,

eventually funded by NIH as the Chemical and Biological Screening Core (CBSC). The drug discovery group began with the intention of screening compounds either extracted from plants by Dr. Antonio Evidente from the University di Napoli or synthesized by Dr. Alex Kornienko and Dr. Igor Magedov in the Department of Chemistry at NMT. Dr. Scott Shors, in the Department of Biology, was also a member of this original group. The group was interested in discovering novel antibacterial and anticancer compounds and this presented numerous opportunities for student involvement, both in chemistry and in biology. The chemistry-driven students would work on the synthesis of the compounds and the biology-driven students would then test for activity on various strains of bacteria and cancer.

Initially the drug discovery group had no funding but the collaborative group thrived on what resources



Moaaz Soliman, right, surprised at his Shortess Award presented by Dr. Snezna Rogelj

they had. Eventually, the group received five-year funding through the New Mexico IDeA Networks of Biomedical Research Excellence (NM-INBRE). Rogelj continues to serve as a Steering Committee member and an Institutional Liaison for the current five INBRE-funded investigators. The drug discovery group, now in part funded by the Presidential Research Fund and co-led by Chemistry Research Professor, Dr. Liliya Frolova, continues to thrive and offer students valuable research opportunities. In less than a decade, the drug discovery group affected 80 plus undergraduate

and graduate students (~25% URM), presented hundreds of posters and talks at various conferences, and published over 25 biomedical papers with more than 60 graduate and undergraduate student co-authorships. While student success has always been a priority, the group's accumulated efforts are working towards the development of new medications and making a difference to hospitalized patients; four NMT patents have been filed or awarded for compounds that target particularly difficult to treat drug-resistant cancers and bacterial infections.

### present day

With one child still in high school and her other two kids well on their paths as medical doctors, Rogelj never hesitates to go out of her way to help other children, her students. Rogelj's kind words of encouragement and wisdom, coupled with her anecdotal stories, touch the lives of many. Rogelj's character is displayed by her answer to a question I simply had to ask: "What would you do if you didn't have the choice of being a scientist?" Without hesitation, Rogelj replied, "I would run an orphanage in a poor country; maybe it is not too late?" She cares deeply and wants to see every one of her students succeed in reaching their own goals. One of the most valuable pieces of advice I've received from Rogelj is to make the best out of the difficult situations that are so inevitable in life. "Sail with the wind that comes your way," she recommends.

Apparently, this can truly work.

# president's golf tournament

the 21st annual  
presidents golf tournament  
september 17 and 18, 2015



Dr. Daniel H. López



Lunch is served!  
Tony Ortiz, Van Romero and  
Reynaldo Maestas



Refreshment booths scattered  
throughout the course



M-Mountain evaluating the golfing expertise of the players

*The President's Golf Tournament was a huge success because of the generous support of our major sponsors, team, hole and co-hole sponsors, and all our volunteers—many of them current students. This year over \$190,000 was raised with the proceeds going to the President's Scholarship Fund. To date over 320 students have benefitted from the fund.*



Players from left to right: James Rivera, Jayson Allen, John Conner, Dr. Dan López, Doug Cooper, Randy Garcia, Ted Martinez, Dr. Van Romero



Participants enjoyed perfect  
golfing weather



Relaxing after the game



Golfers had a chance to win a  
2015 Mustang donated by Rich  
Ford of Albuquerque

# alumni spotlight

dr. jesus gomez-velez

## tech professor publishes river research

New assistant professor of hydrology Dr. Jesus Gomez-Velez is the author of a new study in the journal *Nature Geoscience*. His research was conducted while he was a post-doc with the USGS in Texas.

Working throughout the Mississippi River basin, Gomez-Velez collaborated with colleagues from the University of Texas at Austin to establish the river's potential to decrease its load of nitrate and identified how certain basic river management practices could increase that potential.

Gomez-Velez is a two-time graduate of New Mexico Tech, having earned his master's in 2008 and his Ph.D. in 2014. He won the Founders Award at the 2014 commencement, given to the graduate student who made an outstanding contribution to the university. Another co-author is Dr. M. Bayani Cardenas, an associate professor at the University of Texas who earned his

Ph.D. at New Mexico Tech in hydrology in 2006.

"Increasing nitrogen concentrations, mostly due to the runoff of agricultural fertilizers, in major rivers have led to over-fertilization of waters downstream, diminishing their commercial and recreational values," said William Werkheiser, USGS associate director for water. "Understanding the natural potential of rivers themselves to remove nitrogen from the water, and boosting that potential, is a promising avenue to help mitigate the problem." Beneath all streams and rivers is a shallow layer of sediment that is permeated by water exchange across the sediment surface. This thin region in the sediment beneath and to the side of the stream is referred to by scientists as the "hyporheic" zone,.

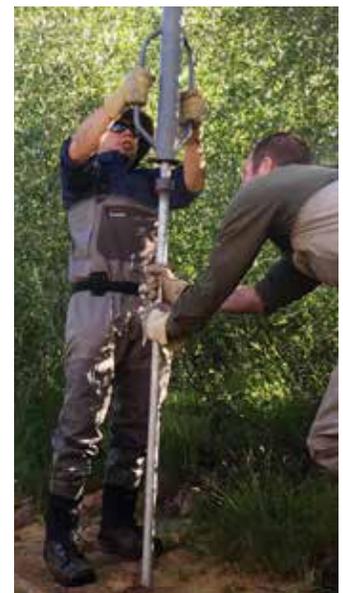
"We've found in previous studies," Gomez-Velez said, "that the flow of stream water through this thin zone of sediment enhances chemical reactions by microbes that

perform denitrification, a reaction that removes nitrogen from the aquatic system by converting it to nitrogen gas." The research team determined that, throughout the Mississippi River network, vertical hyporheic exchange (with sediments directly beneath streams and rivers) has denitrification potential that far exceeds lateral hyporheic exchange with bank sediments. "Rivers with more vertical exchange are more efficient at denitrification, as long as the contact time with sediment is matched with a reaction time of several hours," said co-author Jud Harvey, the USGS team leader for the study. The study findings suggest that managing rivers to help avoid the sealing of streambeds with fine sediments, which decreases hyporheic flow, would help exploit the valuable natural capability of rivers to improve their own water quality.

Other river management and restoration practices that protect permeable river bedforms could also boost efficiency, such as

reducing fine sediment runoff to rivers. However, typical river channel restoration strategies that realign channels to increase meandering would not be as effective, because a comparatively small amount of water and river nitrate are processed through river banks compared with river beds.

Although not yet tested, allowing natural flooding over river banks onto floodplains may also be an effective means of processing large amounts of river water to remove nitrogen before it reaches sensitive coastal waters.



Dr. Jesus Gomez-Velez (left )  
Dr. Andrew Luhman (right) on a  
project on the Animas River

# alumni association news

a letter from your alumni association

Alumni and Friends of New Mexico Tech:

Another academic year is well underway at Tech, and another 49ers weekend has come and gone. Alumni were everywhere in evidence during 49ers weekend, whether walking the campus enjoying the glorious weather and the beauty of the place or cheering on the floats in the 49ers parade. It turns out that the Office for Advancement and Alumni Relations won first place for its float in the parade.

Alumni were also present for many events arranged just for them. This included an alumni reception in the lobby of the new Bureau of Geology Building (aka Chuck and Jessie Headen Hall); an auction took place in connection with this event where one of the items auctioned was a night in South Hall. I'll bet that pulled in a substantial amount. Overall, the auction raised some \$2600, which will go into the Alumni Lifetime Scholarship Fund at Tech. The 4th Annual Victor J. Saracini Memorial Fundraiser for the NMTAA took place on Saturday evening at the Bodega Burger Company in Socorro. Also honored at this event, jointly sponsored by the NMTAA and Tech's Office for Advancement and Alumni Relations, were members of the classes of 1965 and 1990. These same classes were honored at a reception on the patio of the Capitol Bar on Thursday evening.

Speaking of the Capitol Bar, much fun was had by those who haunted this traditional Tech hangout, and I counted myself among them. The music was great, the beer was just as good as I remembered it from my student days, and the camaraderie was best of all.

The Annual General Meeting of the New Mexico Tech Alumni Association was held on Saturday afternoon. At

that meeting, we reviewed the progress made by the NMTAA during the past year, heard a report from Heidi Brown of the Office for Advancement and Alumni Relations, and elected Board Members and Officers for the coming year.



The following people now constitute the NMTAA Board of Directors: Linda Baumert, Louise Chamberlin, Ken Fagan, Nicki Fatherly, Geza Keller, Paul Shoemaker, Kenneth Silsbee, Brett Wendt, and Harvey Westbrook. Officers were also elected, and they are: Brett Wendt, President; Kenneth Silsbee, Vice President; Linda Baumert, Secretary; and, Geza Keller, Treasurer, and Paul Shoemaker, Immediate Past President.

I hope many of you reading this letter and enjoying this post-49ers edition of the Gold Pan will make plans to come back to Tech next fall to participate in a great weekend series of events. Mark your calendars for October 13-16, 2016.

Sincerely,

Paul E. Shoemaker  
Outgoing President, NMTAA

# Homecoming



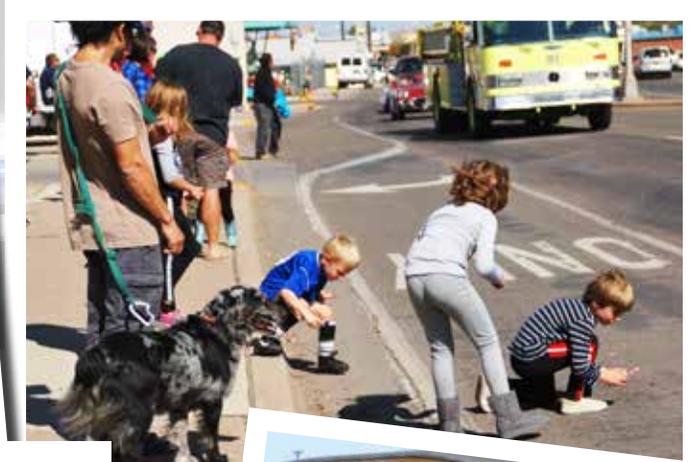
Diversity Panel:  
Melba Aguilar, Dr. Nancy Lopez, Judy Loveless



Moderator Samuel Brinton



Jane Cook, Yitian (Tina) Li, Pat Miller



# 49ers 2015



Grand Marshall Dr. Daniel H. López,  
President of New Mexico Tech,  
chauffeured by House Speaker Don Tripp



Dave Thomas



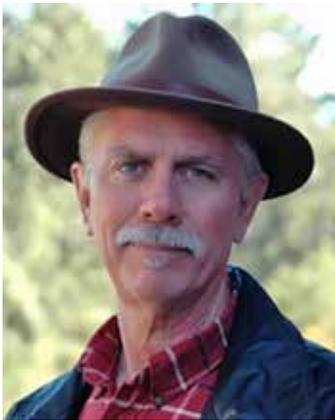
Bill Stevenson, Theresa Kappel  
Rose Garcia, Chris Pauli, Kiame Pound, Scott and Judy Williams, Margaret and  
Anthony Onimole

# people you know

1970's

## Michael Glaviano '79

After about thirty years in the software engineering industry, I've moved into a second, multifaceted career — a fancy way of saying that I don't want to be retired so I have more than one part-time job. For the past eight years, I've taught yoga at a local athletic club. I find the emphasis on balance, flexibility and core strength is a great complement to my long-term weight training



Michael Glaviano

program. And then there's our huge garden. And yes, I continue to play electric guitar and sing. But for me, none of these things could provide the intellectual stimulation I need, so I decided to pursue my lifelong dream of writing fiction. At this point I have three novels available. The first was *The Locust Queen's*

*Feast* and is a dark, urban fantasy. The second is called *Edge Station*. It's a "hard" science fiction novel — warp drive, aliens, strong AI... the whole enchilada. *Edge Station* also has a strong thread of social commentary, but it's first and foremost a science fiction adventure. My third novel is titled *Crows' Gambit*. It's very different from the other two. *Crows* is almost a straightforward whodunit. It's about a young tech writer, a Silicon Valley "ex-pat" who thinks he has his life dialed in. Suddenly, within the space of 24 hours, he finds himself without a job or a place to live. As he struggles to put his life back together, he becomes embroiled in a series of mysteries. I'm especially pleased with a sequence that takes place in January, 1938, at the Savoy Ballroom in Harlem, based on a real event: a battle of the bands between Chick Webb and his vocalist, Ella Fitzgerald vs. Count Basie, with his vocalist, Billie Holliday. At the time, both Ella and Billie were about twenty-one. This was a time of twenty-foot long Cadillacs, gangsters, and great live jazz. The bouncers wore tuxedos. When I read about that night, I just had to put it in a book. While most *Crows' Gambit* is contemporary, the 1938 events (real, as

well as fictional) are critical to the plot. What's up next? Well, ever since *Locust Queen's Feast* came out, I've received requests for a sequel. Eventually, I surrendered to the pressure and wrote another story with the same characters, but I set it aside while I worked on *Edge Station* and *Crows' Gambit*. Now it's time to restart that project. The new novel is titled *A Fragment of Nothing*. If all goes according to plan I'll release it in the first half of 2016. For good or ill, adding a sequel to *Locust Queen* opens up that universe to the extent that it'll take a third installment to finish the larger story arc. What I conceived of as a standalone novel will end up as a trilogy. Worse things have happened. I'm incredibly grateful for the education I received at Tech. It enabled a career that not only supported my family and myself for decades but also allowed me to do what I love: write.

1980's

## Vannetta Perry '86

New Mexico Tech graduate Vannetta Perry was named the new superintendent of Magdalena Schools in August. Perry earned a master's degree in chemistry from New Mexico Tech

and Ed.D. from UNM. She also worked for Socorro Consolidated Schools for 10 years as Director of Curriculum, Human Resources director and associate superintendent. Perry also taught biology at New Mexico Tech, ran the student research internship program for Sandia National Laboratories, and coordinator of Educational Outreach Programs at Tech.

## Sherri Bingert '87

Tech graduate Sherri Bingert recently was named a fellow and received the prestigious Award of Merit from the ASTM International. Bingert earned her bachelor's at New Mexico Tech in materials engineering, then earned a master's from Colorado School of Mines. She has spent her career at Los Alamos National Laboratories, where she is currently on her second assignment with the DoE's



Sherri Bingert

National Nuclear Security Administration. Bingert specializes in metallurgy and materials science, with an emphasis on powder metallurgy and particulate materials, refractory metals and alloys, precious metals, and alloy and process development. Bingert has served as program manager of LANL's Joint Department of Defense/Department of Energy Munitions Technology Development Program and the Dynamic Materials Properties program, as well as deputy group leader for Shock and Detonation physics at LANL. She also is a member of the American Powder Metallurgy Institute, ASM International and the Minerals, Metals and Materials Society.

1990's

**Dr. Theresa Hermel-Davidock '97**

TapIntoSparta, an online news site in Sparta, N.J., published an article about Dr. Theresa Hermel-Davidock, a 1997 Tech graduate in mathematics. Hermel-Davidock presented a STEM discussion with high school students. She is the senior technology manager of advanced material research with Becton, Dickenson and Co. Hermel-Davidock earned her Ph.D. at the



**Dr. Theresa Hermel-Davidock**

University of Minnesota in materials engineering. Hermel-Davidock and her team are responsible for supporting material selection, conversions and qualifications for the company's global product portfolio. They are responsible leading the identification and development of new materials technologies, project leads for several corporate level materials related initiatives and liaison for several external academic research programs. She joined Becton Dickenson in 2010. Prior to that, she worked for more than seven years at the Dow Chemical Co. Hermel-Davidock is on the academic advisory boards for the Materials Science and Engineering Departments at Johns Hopkins University and the New Mexico Tech. She has been an invited speaker to numerous

universities and international conferences, as well as being the author of many publications and inventor on multiple patent filings.

2000's

**Dr. Alexandria Marchi '08**

Los Alamos National Laboratory published an article that mentions New Mexico Tech graduate Dr. Alexandria Marchi. The article describes Dr. Marchi's research and the Engineering Institute at LANL. Marchi earned her bachelor's at New Mexico Tech in chemical engineering in 2008 and later earned her doctorate at



**Dr. Alexandria Marchi**

Duke University. A native of Los Alamos, Marchi first joined the Laboratory in 2005 (while studying chemical engineering at Tech.) Her work at Los Alamos includes helping to develop a remotely readable tamper-evident seal, a device that recognizes unauthorized access to protected areas

or items. The seal has potential for international nuclear nonproliferation applications and commercial use. Marchi recently won a fellowship through Los Alamos' Seaborg Institute, which fosters cooperation and collaboration in actinide science — one of the main branches of nuclear chemistry — among the national laboratories, university campuses and the national and international science community.

**Dr. Manoj Kumar '09**

Tech graduate Dr. Manoj Kumar, is now a professor at Thapar University in Patiala, India. The article begins: "In the revolutionary world of nano technology, a young scientist based in Patiala is silently trying to create a tiny ripple by developing nano sensors for early detection of cancer." Dr. Kumar completed his doctorate in chemistry at Tech in 2009. He won the 2009 Langmuir Award at Tech, which is given to the graduate student who published the top research paper in the previous year.



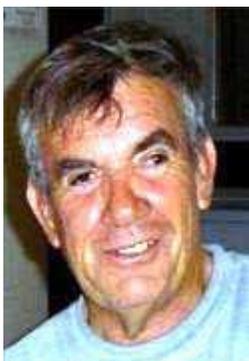
**Dr. Manoj Kumar**

# in memoriam

## **Charles Del Curto 1940—2015**

Charles Henry Del Curto, age 75, passed away peacefully with his cousins at his side on Friday, July 3, 2015. He was born in Socorro, NM on February 23, 1940, to Henry and Alice (Zimmerly) Del Curto.

As a senior in high school, he joined the NM National Guard. After graduation he attended New Mexico State University and New Mexico Tech. Charles served as Post Master at NM Tech for 20 years. He was an avid golfer, an exceptional wood worker, and loved to travel—touring Canada, Alaska, Hawaii, and China. Some of his most enjoyable times were cooking at his home with his wonderful NM Tech friends from India, Japan, and China.



## **Charles (Chuck) Rudolph Garrett III 1938—2015**

Charles (Chuck) Rudolph Garrett III passed away Tuesday, July 21, 2015 at the age of 77 from complications due to cancer. He and his wife Mary have called



Charles (Chuck) Rudolph  
Garrett III

Pahrump, NV, home for many years. He was born in El Paso, TX, to Charles and Marie Garrett, on June 4, 1938. He lived in many places throughout his childhood but spent most of his school years in Socorro, NM. Chuck graduated with a bachelors in mining engineering from New Mexico Tech in 1960 and with a masters

in concrete/shafts from Montana School of Mines. With his expertise he was able to work in many places with underground mining and pit mining. One of his most interesting jobs was putting in a mile deep shaft on Amchitka Island off of Alaska.

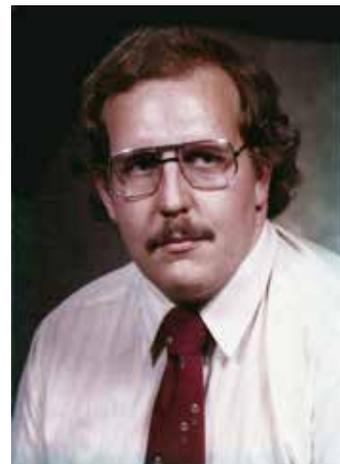
He was married twice, first to Marylou Taylor and had 4 children, Kathy, Rocky, Burt (deceased) and Russell. He has been married to Mary Dyer Garrett for 41 years and they have a daughter Alaine. He continued working up until his death, never losing his desire to learn. Chuck loved golf and even played 18 holes two days before his death.

He will be cremated. There will be a family memorial in the spring of 2016 to be held in his home town of Socorro, NM. He will be greatly missed and forever loved.

In lieu of flower or donations, we ask that you take a moment to hug your child, grandchild, friend, or go play a round of golf because time waits for no one.

## **Frank Greiner 1954—2015**

Frank Greiner, a radiologist at the University of South Alabama Hospital died Friday, May 1, of complications from spinal cord surgery.



Frank Greiner

Frank (Francis) was born in San Antonio Texas on Dec 10, 1954 to Bill and Dolores Greiner. He spent much of his boyhood in New Mexico, a good part of it on the Navajo Reservation.

When he was about 12 he and his father climbed up one of the mesas at Chaco Canyon. Although the rangers said nothing was on top of the mesa, they were curious as to why there were ancient

handholds going up the cliff face. Once there, they wandered around and looked at some unexcavated ruins before coming back down. You could do those things in those days.

Later on, they learned this was the area where the famous “Sun Dagger” calendar was found. That story is an example of the curiosity that stayed with him into his adult life. Frank was a good athlete in his youth, serving as defensive captain of the football team, catcher on an all-star baseball team, and a wrestler. Frank was a good basketball and tennis player, and while in medical school coached the women’s basketball team to an intramural championship. One of his coaching slogans was “They really ought to give you six fouls, because sometimes you hit someone by mistake.”

His academic gifts and interest in science led him to attend New Mexico Tech in Socorro. He graduated with honors in three years while working on the grounds crew. At

nineteen he found himself as a graduate assistant teaching chemistry at Purdue. That didn’t suit him, and he quit school to join the Army. Frank was stationed at the Aberdeen Proving Ground, a swampy area in Maryland. His responsibilities were insect and poisonous snake control. He had a funny story about some frightened soldiers that came across a snake in the road. They bayoneted it several times, and then ran over it with an Abrams tank to make sure it was dead. The skin was then brought to him for identification, but was in such terrible condition that he couldn’t identify the snake. That didn’t keep his C.O. from telling him he wasn’t doing his job.

After the Army, Frank earned a Master’s in Chemistry from the University of Delaware, and then was accepted into Medical College of Virginia, where he received his M.D. degree in 1984. One of his classmates recalled Frank’s irascible nature. There was an oral final in surgery, each student going individually

before a board of surgeons to answer questions. The classmate remembered that Frank’s non-conventional but correct answers made the examiners so angry that they took it out on him when he followed Frank into the exam. Frank received advanced training in Buffalo, New York and Albuquerque, New Mexico before settling in Mobile, where he was a radiologist and a staff member at the University of South Alabama Medical School.

His background in science gave him a deep understanding of MRI technology, and he became a specialist in this area. He also served as an interventional radiologist, which required reading radiological images while performing a surgical procedure. As a physician, radiologist, researcher, and teacher he was well-regarded, having won several distinguished teacher awards. He paid attention to detail, kept learning his entire life, was unafraid to speak out when necessary, and always kept patient care at the top of the list.

Frank loved music from Brahms to the Beatles, and was an accomplished chess player, having once been Alabama state chess champion. He gave to AmeriCare and the Waterfront Rescue Mission. He was a member of a top-flight bar trivia team and loved “Talk Like a Pirate Day.” Frank took in stray cats, and practically memorized several off-beat movies, including the “Trinity” westerns and “My Name is Nobody.” He had a wicked, dry, and occasionally bizarre sense of humor, and enjoyed riling people up, particularly those in positions of authority. Frank is survived by his mother Dolores, siblings Tony (Mary), John, and Ann (Van) Hadaway, and a robust extended family. His legacy includes the care he provided to thousands of patients and training and guidance he gave to hundreds of practicing radiologists. They came to him as students, and left as colleagues. Remember Frank by embracing the chance to have fun, paying

attention to detail, striving for excellence, and caring for those who need help.

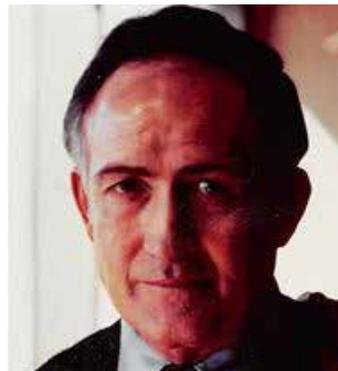
Tony, Frank's brother, shared remembrances with us regarding Frank and New Mexico Tech. Frank loved Tech. When he attended, there were peacocks roaming the campus, campus dogs, and a fair number of Vietnam Veterans who had practical experience in explosives. That experience sometimes led to overly aggressive chemistry "experiments" involving home-made cannons and similar devices. He loved the first hole of the Elfego Baca golf tournament, and the rough-and-tumble treatment of the Freshmen class at 49er Days. He got to try many things, and even had a small part in a theater department production of "As I Lay Dying" by William Faulkner.

Some years after his graduation, I was passing through Socorro and decided to see the campus where my brother went to school. I stopped at a local tienda and asked for directions to the

college. "College?" said the college-aged man staffing the counter, "There's no college here." "Yes there is, New Mexico Tech." "Oh, TECH" he said, "yes, well we do have Tech." Frank loved that story. In later years he regretted the smoothing of some of Tech's rough edges, and the disappearance of the peacocks, but he continued to be proud of his alma mater.

**Henry L. Karnes, Jr.  
1928—2015**

Henry L. Karnes, Jr. was born May 24, 1928 in San Angelo, Texas and passed away July 23, 2015 in Plano, Texas.



Henry L. Karnes, Jr.

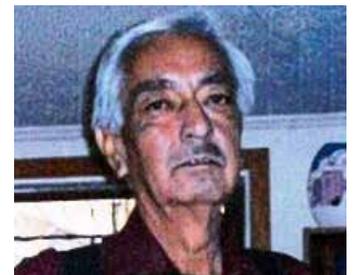
Preceded in death by his mother, Myrtle Williams Karnes; father, Henry L. Karnes Sr.; and sister, Wanda Karnes Smith. He is survived by his wife,

Mary Ann Karnes (Dallas); son, Thomas H. Karnes (Addison); son, Frank Scott Karnes (Plano); sister-in-law, Diane Bode and brother-in-law, Tom Rand Jr. (Rice Lake, WI); Henry passed away of pneumonia, he grew up in Longview, Texas and graduated from Pine Tree High School. Graduated from School of Mines in Socorro, New Mexico as a Petroleum Engineer in 1949. He always loved flying and held a private pilot's license before a drivers license. Henry joined the USAF in 1950 went in for pilot training jets and flew in Korean War. He also flew many missions in Viet Nam. Henry learned fluent Spanish to fly with the Spanish Air Force in Madrid, Spain. He survived 2 planes crashing in front of him. He decided to not take those planes (a premonition) one in Tokyo and one in Uruguay. He was a very perceptive person who led a charmed life. After 24 years in the Air Force, he decided to pursue a career in Financial Services as a Financial Advisor and

was active and worked up until a few weeks prior to his death. Our hearts are broken over our loss. You were the best as a husband, father, uncle, and friend to everyone you met and worked with! He was a very rare man. We will love and miss you every day of our lives. He was married for 61 years to Mary A.

**Leroy R. Lujan  
1949—2015**

Leroy R. Lujan, 65, born October 5, 1949 to Rafael and Elena Lujan passed away on September 8. He was preceded in death by his parents, Rafael and Elena Lujan; brothers and sisters, Gorgonio Lujan, Jerry Lujan and Belma Sandoval. Leroy was a very special son, brother and uncle.



Leroy R. Lujan

He cared for all his family and was always there when you needed him anytime day or night. He

loved to sing and dance and loved being with his friends and family. Leroy graduated from Santa Cruz High School in 1968 and attended New Mexico Tech. He worked for the Española School System. Leroy is survived by his sisters, Manuelita Romero and husband Robert of Santa Fe, Ida Berry and husband Lee of Texas, and Vicki Padilla of Alcalde, brothers, Arthur Carlos Lujan and wife Ada of Santa Cruz, Johnny Lujan of Santa Cruz, many nieces and nephews, relatives and friends.

**Rosemary Medcalf**

Rosemary Medcalf passed away unexpectedly on October 1st.



Rosemary Medcalf, 79, who was a valued staff member of the New Mexico Tech community from 1993 until her retirement in 2009. Rosemary was an

Administrative Secretary who worked in various departments on campus including Admissions, Petroleum, Materials, E&ES, Graduate Studies, Mechanical Engineering, and Business Management. Whatever department she was in, she worked hard to create a streamlined office environment and to facilitate relationships between faculty and their students.

**Arlen Patrick Moore  
1979—2015**

Arlen Patrick Moore, 36, born March 29, 1979 passed away just before noon on Friday, August 21st, 2015, at Presbyterian Hospital, surrounded by his friends and family.

Arlen was born and raised in Albuquerque and graduated from Albuquerque High in 1997. He excelled in football and track. After high school he attended New Mexico Tech and then moved to Dallas Fort Worth where he worked in the tech department for T-Mobile and attended the University Of Texas School Of Engineering. Arlen was a tall, strong, highly



Arlen Patrick Moore

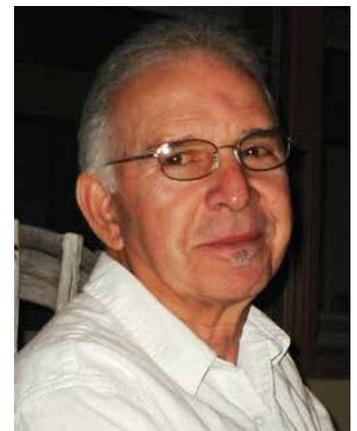
intelligent young man who loved his children deeply and was deeply loved by his friends and family. As a kid he loved to draw and read. He enjoyed the Washington Redskins, video games, electronics, snowboarding, and cracking jokes with friends. He was known for his big heart and big personality, though to those who knew him best, he was remarkably sensitive and shy.

He leaves behind two beautiful boys, Jackson and Logan and their mother, Kelly; his mother, Sylvia Stearnes; step-father, Mike Stearns; sister, Audrey Moore; brother, Chase Stearns; and sister, Kiersten Stearns. He was preceded in death by his father, Patrick Arlen Moore. He will be deeply missed.

**Frank Anthony Puloma Jr.  
1939—2015**

Frank Anthony Puloma Jr., of Santa Fe, N.M., formerly of Pine Bluff, Hot Springs, and Little Rock, Ark., and St. Louis, Mo., died on Aug. 29, 2015 after a two-year battle with cancer. He was 75 years old.

He is survived by his wife, Karen of Santa Fe; mother, Margaret Puloma of Hammond, La.; children, Rick Puloma (Brenda) and Patti Puloma of Conway; step-daughters, Meghan and Paige Haxton



Frank Anthony Puloma, Jr.

Frank was born on Dec. 4, 1939, to Frank Anthony and Margaret Masilio Puloma in New Orleans, La. He grew up in New Orleans and Metairie, La. Frank served in the

Air Force in Guam and Jacksonville, AFB. Upon leaving the Air Force in 1961, Frank entered a career in pharmaceutical sales. He loved his job and was a driven professional with a much celebrated career. He retired as a pharmaceutical sales representative in the transplant division of Sandoz Pharmaceuticals in 1997.

He married Karen Jensen in 1995. After living in St. Louis, Mo., they relocated to New Mexico in 1999 to enjoy retirement. Frank was a serious hiker. He was a member of the Over the Arroyo Gang hiking group, and spent many happy hours trekking the mountains with his friends. He was a passionate cook and a world traveler. He served on the Governor's board for compulsive gambling and volunteered with AARP in developing a proposed comprehensive health care plan for New Mexico.

Frank was cherished by friends and family. He is remembered for his gentle nature, sweet soul and wonderful sense of humor.

He was a loyal husband and a loving father. Frank has taught us how to live and die—with grace and humor.

***Douglass Allen Taylor***  
**1967—2015**

A good man has left us. Douglass Allen Taylor was born in New Mexico in 1967 died unexpectedly from an undiagnosed heart condition on September 15, 2015. For 22 years, he shared his life and his love with his wife, Lisa Majkowski-Taylor and their family of pets. He worked at a job that he loved for 23 years at the Isleta Casino and Resort. He was an intelligent, honorable, hard-working, decent person with a



Douglass Allen Taylor wickedly funny sense of humor. He was amazingly inventive and could build or repair anything. His

passing leaves a permanent hole in the lives of his family, friends and colleagues.

In lieu of flowers, the family would appreciate a donation to the Claws and Paws Cat Rescue of Socorro

***Karl Alexander Thyssen***  
**1944—2015**

Karl Alexander Thyssen 71, passed away September 9, 2015 in Socorro, NM. He was born in Hohenstein-ersttahl, Germany, on January 19, 1944, to Guenter A. and Kathe M. (Krausse) Thyssen. After World War II Alex and his family came to the United States and settled in Provo, UT where he received his degree in accounting. In 1976, he moved to T or C, NM to be near his parents who owned and operated the Ace Lodge there. In 1978, Alex went to work for the Bookkeeping and Tax Service owned by the late Arvilla Knight and moved his family to Socorro. He later purchased the business from Knight. He went to work for New Mexico Tech in Socorro and

retired in 2014. Alex was a man of great faith. The two most important things in his life were his church and his family. He will be greatly missed by all who knew and loved him. Alex is survived by his beloved wife of 23 years, Gladys Diemecke Thyssen; his loving children, Martina and husband, Freddie Apodaca and their children, Clinton, Felix and Katie Apodaca; Todd Thyssen and wife, Ofelia and their children, Alexis, Carlos and Maria Thyssen and Juan Trujillo; Nicki Hanna and husband, Eugene Chavez and their children, Daiqori and Christopher Chavez; and Pablo Diemecke and wife, Anna and their children, Emma and Beatrice Diemecke.



Karl Alexander Thyssen

# the last word

elizabeth barbeau

Elizabeth Barbeau is a senior at New Mexico Tech where she is working on a double major in Technical Communication and Civil Engineering. She's looking forward to graduating in December 2015.

Elizabeth grew up and was homeschooled in rural New Mexico. She participated in 4-H where she raised livestock and learned to shoot. She then competed in target rifle competitions for 10 years until her sophomore year at NMT. When Elizabeth was 16, her family moved to Socorro and she began taking NMT classes. Although she did attend Socorro High School for two years, she dropped out and earned her GED certification so that she could begin attending Tech as a full-time student. Her first weeks at Tech were among the most exciting in her life.

Elizabeth is an extroverted student who quickly became involved in clubs and organizations at NMT. During her freshman year, she started a Japanese Club where NMT students

could gather and support each other while studying Japanese. She became part of the Engineers without Borders NMT chapter in her sophomore year. For four years, she was President of the student chapter, Trinitite (Society of Technical Communication). She is active in the American Society of Civil Engineers, NMT student chapter, and volunteers with the NMT Engineers Without Borders club at the Habitat for Humanity ReStore in Albuquerque. She is also on the honor roll.

International travel is important to Elizabeth. She has been to Japan, Nepal, China, Mexico, Denmark, Germany, Israel, and Palestine. She hopes to see more of Europe and to finally venture to South America to practice her Spanish. She is a big fan of having international student exchange programs at NMT, especially because international students have been some of her closest friends and biggest inspirations.

Elizabeth has held several

jobs and internships while at New Mexico Tech. Elizabeth is currently a grader for the Communication, Liberal Arts, and Social Sciences (CLASS) Department, and previously worked with the Magdalena Ridge Observatory and the High Altitude Ambassadors Volunteer Program, where she worked on web management, education and outreach programs, fundraising efforts, media and social media development, and content management. During the summer of her freshman year, she was a research compiler for the Research and Economic Development Division doing research on the history of NMT and the M Mountain Run in particular. From 2011-2013, she was the Co-Leader of the Student Research Symposium. She interned for TLC Plumbing and Utility during summer 2014, where she learned construction estimating, project management, and site supervision. This past summer Elizabeth was in Israel working



Elizabeth Barbeau with Grassroots Alquds, a political grassroots organization building platforms and visions for the future of the city of Alquds (Jerusalem).

What's next for Elizabeth? In January she will be moving from New Mexico and starting her career with Kiewit Infrastructure Engineers in Denver, Colorado, as an Infrastructure Proposal Writer. She was thrilled to be recommended for a position that combines her strength as a writer with her passion for infrastructure and heavy civil engineering. She looks forward to being a supportive alumnus.



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