PAYDIRT

Tech Goes to Space
p. 8

New Opportunities
November 11th, 2019

Your
Paydirt Staff:

EDITOR IN CHIEF   Skyler Matteson

@nmtpaydirt

JOURNALISTS   Evelyn Byrd

PHOTOGRAPHER   Samuel Baca

SPECIAL CONTRIBUTIONS

LAYOUT-EDITORS   Omar Lux
Jaime Mendoza

Special thanks to Student and University Relations and Edie Steinhoff for contributions to content and printing.

Want to contribute or advertise? Send us an email at: paydirtnmt@gmail.com

Visit our website at https://nmtpaydirt.squarespace.com/config/

Visit the paydirt Website using this QR code!

In This Issue:

Halloween Costume Contest

Graduate Student Association Meeting Rundown
11/5/2019

1. Welcome to new department and SGA reps; rep for ADA committee still needed
2. Undergraduate enrollment issue discussed by Dr. Doug Wells, VP of Academic Affairs
   a. As UG enrollment decreases, so does the number and pay of TA positions
   b. Grad students encouraged to help departments with outreach/recruitment/etc
3. Grad student concerns discussed by Dr. Aly El Osery, Grad Dean
   a. Healthcare, student fees, tuition waivers, salaries
   b. Survey sent to obtain better statistics
4. Events
   a. 49ers parade- GSA won 2nd place
   b. Thanksgiving dinner- November 15
   c. Interdisciplinary Symposium in spring- topic TBD
5. Elections for spring- Events Officer and Information Officer open
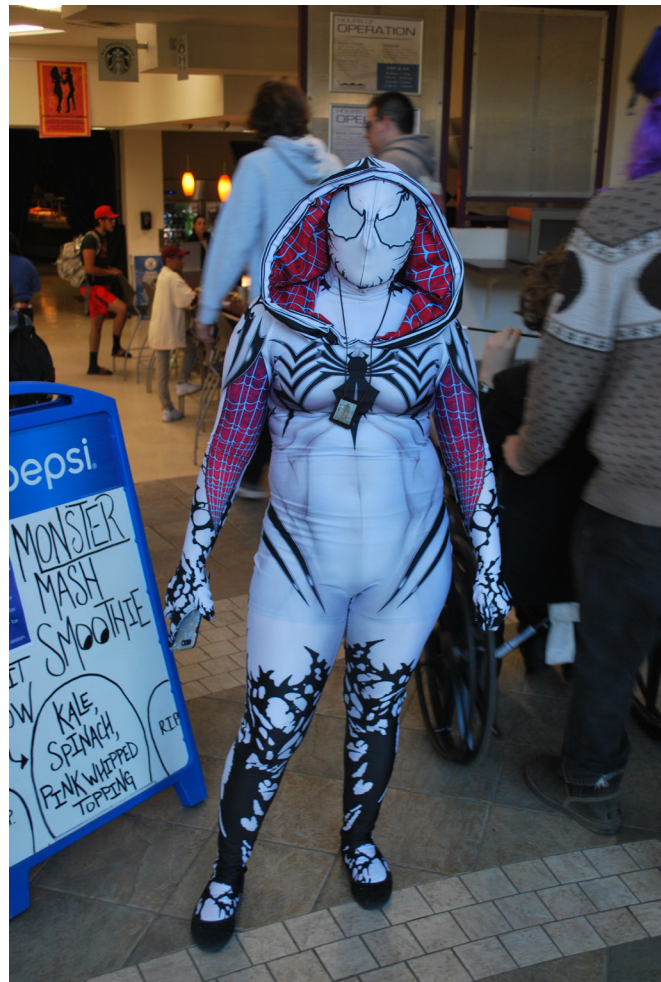
FESTIVAL OF THE CRANES

ARTS AND CRAFTS FAIR
Nov. 22 - 24, Friday, 8 - 5
Saturday, 8 - 5 Sunday, 10 - 2
Join us for Arts, Crafts, and Live Music
Garcia Opera House
corner of California & Abeyta
Socorro, NM

CITY OF SOCORRO

Socorro County ARTS

SGA Meeting Rundown: 11/5/19

1. The OSL is moving to the Skeen Library (more on this further in the issue) and the Materials Department is planned to move into some of the empty office left behind in Speare while the Jones building is being renovated.
2. Several communities on campus are looking for students. Some of these are covering facilities reservations for space on campus. If you are interested in receiving more information, email Dr. Phaiah at deanofstudents@npe.nmt.edu, or visit him in his office: 20D Brown Hall located in the basement. Jones Hall is set to begin renovation in November using internal funds.
3. The Board of Regents' next meeting is the 22nd from 1-5pm in one of the Fidel Ballrooms (specific ballroom TBA).
4. The CFO and Financial Committee presented a recommendation to the senate. It recommended to grant club status but block additional funding to the clubs denied status due to turning in their packets late. The clubs would be put on probation status next semester as though they were a new club. This applied to three clubs, SWE, SSAR, and Cybersecrutiy. It passed 19-2, and later the club Tri-beta was added in a vote 20-1.
5. GSA Representative to the SGA Jose Martinez-Claros presented a memo condemning the conduct of the Oct. 22nd meeting. He "had never seen" such conduct in his 3 years as a GSA rep. Justice Aliser then responded to the claims made by Martinex-Claros, and the memo was dropped 17-1-3.

New Civil and Environmental MS Program

A MS degree in Civil and Environmental Engineering was recently approved at Tech. While Tech has offered a MS degree in Environmental Engineering since 1998, until now there was no option for Civil Engineering.

The person behind this development was Dr. Clinton Richardson, more well known as "Doc." When he came to Tech in 1987, as an Environmental Engineering assistant professor within the Mining, Geological, and Environmental Engineering department, he had the task of teaching six environmental engineering courses over the course of his first two semesters. Over the next several years two additional environmental engineering faculty were added, allowing the program to go for accreditation. It was first accredited by ABET in 1993. In 1999, Environmental Engineering became its own department. In 2003, Environmental Engineering merged with the newly approved Civil Engineering program to become the Department of Civil and Environmental Engineering.

Dr. Richardson currently serves as department chair.

Doc explained that he had hoped to create a Civil Engineering MS separate from the Environmental Engineering MS program; however, in discussions with the Dr. Lorie Liebrock, Graduate Dean, and departmental faculty, it made sense to combine the two. The traditional approval process requires extensive external approval through various bodies including the New Mexico Graduate Deans Council (NMGDC), the Academic Council (AC), the New Mexico Higher Education Department (NMHED), the New Mexico Higher Education Review Board (NMHEDRB) and the State Board of Finance (SBOF). In contrast, making a "nonsignificant change" to the existing Environmental Engineering MS program was a much more streamlined process for approval by the Higher Education Department allowing the combined MS degree to be approved much more quickly.

Like most engineering MS programs, this program requires thirty credits and has two options: Thesis Option with 24 credits of coursework, for students interested in pursuing research and possibly a PhD degree, or an Independent Study option with 27 credits of coursework, for students interested in pursuing their career directly. Students choose a 12 credit Area of Specialization: Civil Engineering or Environmental Engineering. If they come from a different science or engineering discipline, additional prerequisite classes may be needed.

The faculty are excited about the growth potential of this combined MS program and hope that Tech undergraduate students will take advantage of the new opportunity. One student, a Tech graduate, has already applied for the program and will start in the spring. For those who are already set in their interest in Civil Engineering or Environmental Engineeri ng, a five-year MS option is also available. We will have to see how the program grows in the years to come.
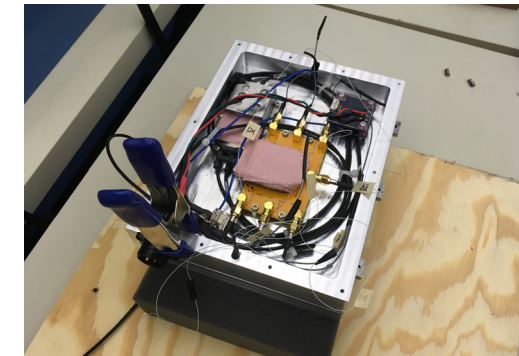
-Evelyn Byrd

Tech Sends Experiment to Space

Look up. Right now, the International Space Station is orbiting the Earth at above 17 thousand miles per hour. And for the next year, it will be carrying a little bit of Tech with it.

For the past few years, Dr. Andrei Zagrai's lab in the Mechanical Engineering department has been working with NASA. The project, which will monitor the structural health of the station, has an overall goal of making space travel safer and cheaper. It involved work by undergraduates on the MechE junior/ senior design team and graduate student John Sanchez. The design team focused on the mechanical portion of the project housing the sensors, while John focused on the experimental portion and signal analysis. Sanchez was happy to tell Paydirt more about the work, launch and his own experiences.

The project uses vibrations to detect structural issues that might occur on spacecraft, such as cracks or loose bolts. If the signal passed from one sensor to another changes, it indicates that something has changed and must be fixed or replaced before it becomes a serious issue. Sanchez explained that his favorite part of the work was how it integrated all of the fields of study he had learned about together. The biggest challenge, he felt, was coordinating with all of the different organizations involved. But it all came together successfully.

The project was launched on Saturday, Nov. 2 from NASA's Wallops Flight Facility in Virginia. It was in the Northrop Grumman Cygnus resupply spacecraft, which was successfully grappled and docked to the ISS on Monday. The rocket used was an Antares 230+, which is 40.5 m (139 ft) tall and weighs 298,000 kg (657,000 lb).

At the launch were Dr. Zagrai, Sanchez, and undergraduates Douglas MacNinch, Matthew Rue, and Isaac Flores. Sanchez explained how, when the rocket was lifting off, you could "feel the pressure in your chest and see waves being created in the water." It sounded like an incredible experience and great reward for the past 1.5 years of hard work.

-Evelyn Byrd

Enrollment at Tech

Exploration Day came and went last Saturday, bringing with it plenty of bright-eyed prospective students touring campus and filling Fidel Center. For some seasoned Techies, it was a reminder of our own first experience with Tech, and it raises the question: why did we choose to come here? That is a question that Tech administration has been trying to answer, to combat our school's decreasing enrollment.

Student enrollment has been decreasing over the past five years. On average, about 55 fewer undergraduates have enrolled each fall, causing a loss of approximately 3 million dollars over the past three years. All areas of the university have been hit. Undergraduates are impacted by increased tuition to cover the gap and decreased funds available to the Student Government Association, graduates may experience decreased number and pay for TA positions, and departments may have difficulty attracting new faculty. As Dr. Doug Wells, VP of Academic Affairs, explained, our professors are currently paid around 30% less than their counterparts at other universities. This makes it difficult to convince potential professors to stay.

There are many sources of funding for Tech outside of tuition and fees. State allocations make up a large portion of the budget, based on a formula from a 2017 memo from the state legislature. Faculty and graduate students also bring in their own funding through grants, some of which is taken as "indirects" for regular upkeep such as electricity, water, and maintenance. President Wells has spoken about his goal to diversify our funding sources, to

NMT Student Enrollment
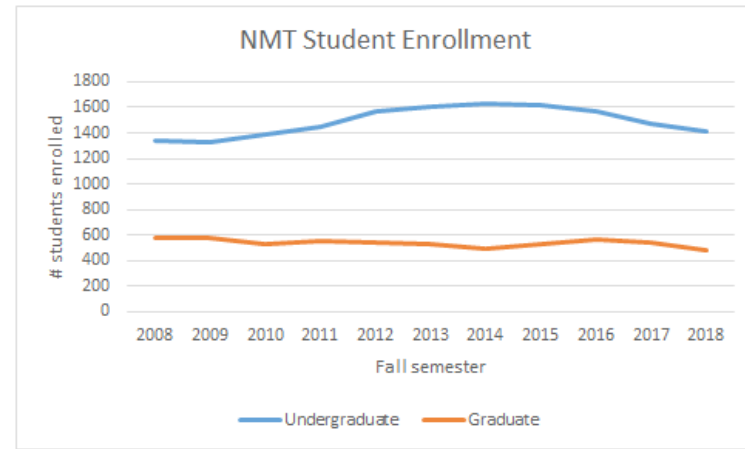
make our financial situation more robust. Even so, tuition and fees continues to be a variable, but potentially quickly improved, component of the system.

This concept brings us back to the issue of enrollment. Our tiny school in the middle of the desert has big stats to back up our quality: we are ranked #1 in the state by College Factual, #5 in the nation for return on investment, and #1 for undergraduates going on to earn PhD's. Yes, we all have to work, struggle, cry, and lose sleep for it (especially at this point in the semester) but for a very good reason. And plenty of other students out there would be willing to put in the work too, if only they decided to come here.

Increased enrollment would benefit each and every one of us at Tech. So how can we convince others that Tech is a great school? Administration has been trying to get students involved, and individual departments have as well. In the end, the ones who can vouch for Tech the best are those of us who actually go here. Hopefully, these new initiatives will be able to reverse the current downward trend of enrollment, and help the Tech community grow.
  -Evelyn Byrd

New Game Design Courses are Coming to Tech

As we grow closer to registering for next semester's courses, I came to hear about a new course coming to both the CSE and FA departments. This new course highlights video game design and allows students to work in teams to create a game over the duration of the semester. Professor Amy Knowles of the CSE department created this course, so I went to interview her on the subject.

How would you describe your background?
K:I have a Master's in Computer science from Midwestern State University in Texas, [but] my background is in Marine Science and Biology. I switched due to family circumstances: I moved away from the coast, nowhere near water. I grew up with video games, ever since I was little. I didn't have siblings, so my siblings were characters from those games [that I played.] My parents were very, protective; I played [only] Nintendo games. Not so much blood and gore, it was cute bouncing things.

Can you describe this new class?
K:I had an open slot to teach something, and I wanted it to show the breadth of what computer science can do. [I thought,] what if we could make a computer game course count as a fine arts credit. The course itself will be run like a video game; you will level up, you will gain experience points, there will be boss battles (midterms). I have a set number of quizzes, but they will be at random. I will roll the dice and either have the quiz or not have the quiz.

K:This class is split into two, [and]

you can register for either. The kids in the coding class (CSE 389) will be in charge of the code of the game, whereas the art kids will be in charge of things like music, graphics, etc. The art class (FA 389) will be more in charge of the rules of engagement, or gameplay, if you will. CSE 213 is the pre-req for CSE 389; FA 389 does not have pre-reqs.

What is the distribution of the class going to look like?
K:The goal is to have the full 40 students in the class, have 2 programmers, and 2 artists for a total of 10 teams. What I'm worried about is that CS students will take up all of the spots, whether they enroll for the coding class or the art class. The rubrics will be split by the classes so that students know what they are responsible for.

When will students start designing their game?
K:Really from day 1. I myself am going to build teams; I will send out a google poll as a way to determine where to put people on a team. Don't expect to be in the class and be on a team with your friend.

Can you provide some details about the class and its content?
K:Mondays and Wensdays would be the lecture, and then on Fridays I have requested lab time. The game will be coded using Unity, [but] I am not going to teach you Unity, I am going to expect you to learn it on your own. The Fine Arts side is going to take a look at various different dies of video game art: 'Why does the art matter?' 'How does art affect gameplay?' 'How

does music affect gameplay?' Blend will be the biggest software for the arts class. It is a 3-D modeler, its free, and it has been significantly improved [over time.]

I believe Unity is mainly a 3-D engine. Can students create 2-D games?
K:You could most likely make a 2-D game. Another option I would offer, if students are set on a 2-D game, would be Pygame, a 2-D focused software which allows you to make a 2-D game relatively fast.

Are you planning on monetizing these games?
K:At least not through the University. To publish, [we will use] things like Itch.io, where they will host your game, free or not, for free. It's a really good market for Indie games.

Will game design ever become an offered degree at NMT?
K:If we offered a game design minor, it would have to be down one of the two avenues, either coding or art.

Anything else you would like to mention?
K:Sound Synth and Digital Music Creation, MUS 289, is also being offered next semester, and at the game jam that's coming up Nov. 22-24, we will be funding developers who create Cybersecurity outreach games during the event.
- Skyler Matteson

The OSL Merge and Skeen Library Changes

The Skeen Library provides a wealth of resources and services to both students and Socorro as a whole. However, it is now adding another resource to its repertoire: the OSL. To find out more about this merge and more about the resources of the Skeen Library, I talked to Dr. David Cox, director of both the OSL and the Library.

Can you tell our readers a little bit about yourself?

C:I have a PhD from the University of St. Andrews in Scotland for Philology, the study of languages. Along with my MS in Library and Information Science I have two master's degrees, and one bachelor's degree. I grew up in Washington State in Bellingham below Vancouver. All we got was Canadian Television till I was 13. Been catching up ever since!

Why the move?

C:The OSL and the library have a common mission in helping students reach student outcomes and being successful here at NMT. The library has a lot of resources to assist with that. We teach at both locations, but at the OSL we teach with more specificity. [For that,] tutors need a wide range of information sources, and [the library] helps with that. As director of both groups (the OSL and the library) I see how they work together. I think that this coming together will strengthen a number of student support systems here.

C:[To make room for the OSL,] we cleared the paper print materials out of the government document section. It was excellent material, but we wanted to go totally digital in Government Documents in order to make the space. We originally thought it was going to take a year to get the government documents moved from Skeen, but Brown Hall offered to speed up the process to make this happen. This allows for the OSL to move into the East First Floor of Skeen.

What were some of the drawbacks of Speare?

C:The rooms were not large; some thought it dark. The veteran's room was down a long back hallway, sometimes it was hard for people to find. [The OSL] is a great department, but it was working in the facilities available. Moving to Skeen will give better usable space, and be better for student security, as it's a lighted location, surrounded by parking lots and clear spaces.

What are the goals of the OSL?

C:The OSL works closely with faculty to make student success a priority. The goals of the OSL is to engage the student population in cooperation with the faculty to provide students with assistance in what they are studying. Often, when students get [to NMT,] it's like a bucket of cold water upon many in the intellectual and emotional transition from high school to college. You need support, help, and a time where you realize you are able to succeed. I want students to realize this truth- they belong at NMT, "You Belong Here." When students come to the OSL, we work with them to build them up and into their fields. I know that if a student can work progressively through their sophomore year, they will be able to move forward to graduation. I find [the OSL] to be an essential and critical program going forward for students. The OSL is dedicated to providing a supportive space to develop community and foster collaboration.

Do you have any workshops, plans, or events coming up?

C:We have events every first Wednesday of every full month of the semester. (Note: At the time of this interview, the date was Nov. 4th.) Tomorrow we are having Dr. Shonka talk about the First Atomic Bomb detonation known as Trinity, which happened 35 miles from Socorro. The evening of November 6 we have a workshop on LaTeX, a writing program specifically for engineering and science. It can be used to write in chapter form for research papers, etc. As a person types into that program, you get two screens. One allows typing in a format page, the other shows you the product in a clean copy. The LaTeX program allows for easy application of tables, citations, forming up to the style you're using. It's a hefty big boy program! We are regularly providing workshops through either the OSL or the Skeen Library.

What other renovations and additions are in progress here at the Skeen Library?

C:Last year we replaced the floor computers. We were told we needed 16 gigabytes of RAM [for] our computers, so we decided to just go up to 32. Pete Martinez said 'I can build 'em,' so Skeen built them and saved money. We didn't put in disk drives because we felt we could buy those and put those in specific locations as needed. Skeen purchased and placed the KIC scanner next to the circulation desk, which has been a success. It has over 12 different formats for capturing materials, such as searchable PDFs. People send their homework from the KIC because documents can be sent [by] email.

C:The old circulation desk was only some wood walls and some tables behind it; the new Circulation Desk is built to ADA guidelines. All over the library the floor plan is laid out according to ADA guidelines. One of the things we are looking at now is a way to help the hearing-impaired. My goal since coming here has consistently been providing 'Access and Service.' Moving the OSL into the Skeen Library space, we now have programs to

support both 'Access and Service' in a multitude of areas as students learn and perform as professionals in their chosen field. More than simply being Skeen Library, we are in the process of becoming the Skeen Learning Center.

C:We also brought in CREDO reference and CREDO literacy material. Usually when you use a library search engine, you have to know how to use it with appropriate search protocols. [CREDO] has "Mind Maps" for multiple topics you may wish to search. It's visual and user friendly. CREDO is a bit like Wikipedia. The difference is that CREDO is not only a good start, it has 'quality control' as its basis (scholarly writings, peer reviewed materials) so students can use, cite, and quote from it.

Anything else you want to tell our readers?

C:If you come here to Skeen, there will be someone to help you. Librarians will often say this: 'We may not know everything, but we know how to find anything.' Don't be afraid to ask questions because we're learning at the same time. And we will work together to help support student outcomes, supporting students and faculty in learning and research.

-Skyler Matteson