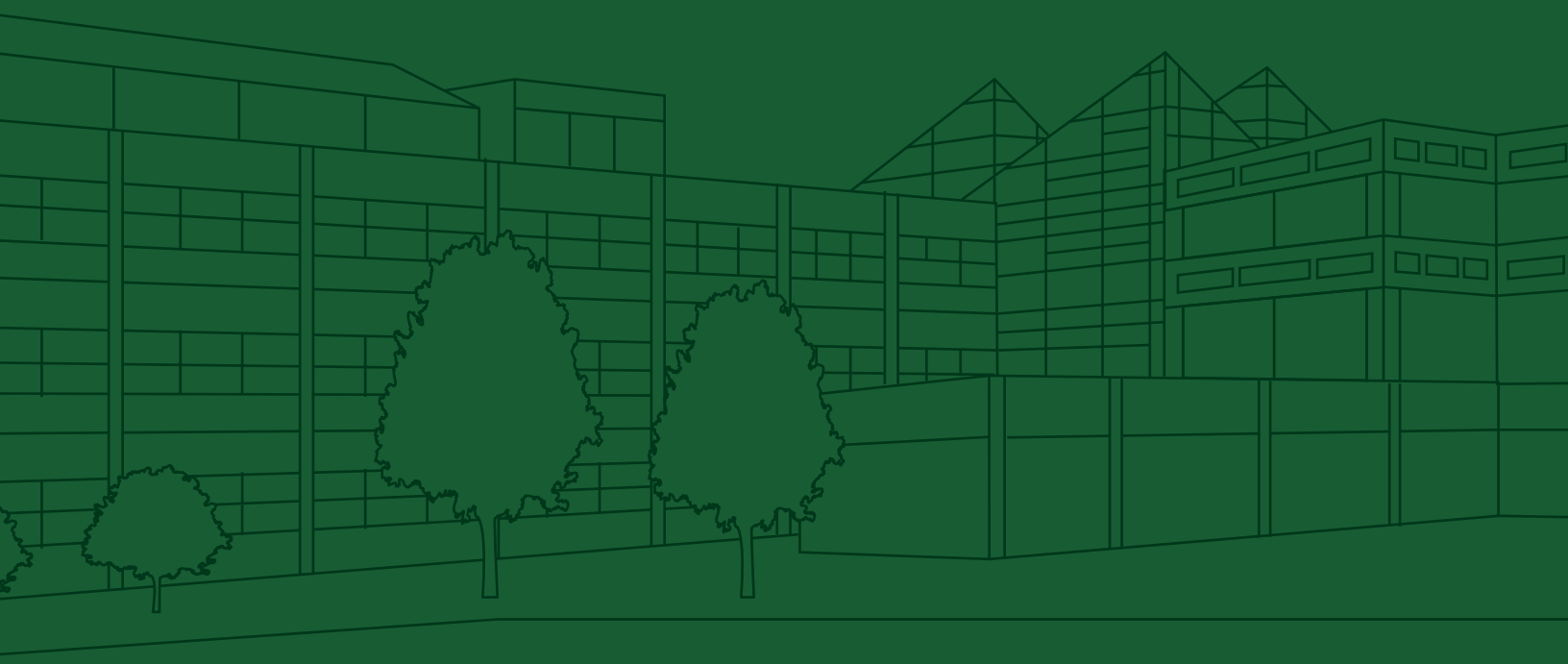
SYNAPSE

THE COLLEGE OF SCIENCE MAGAZINE

Annual Publication 2022-2023



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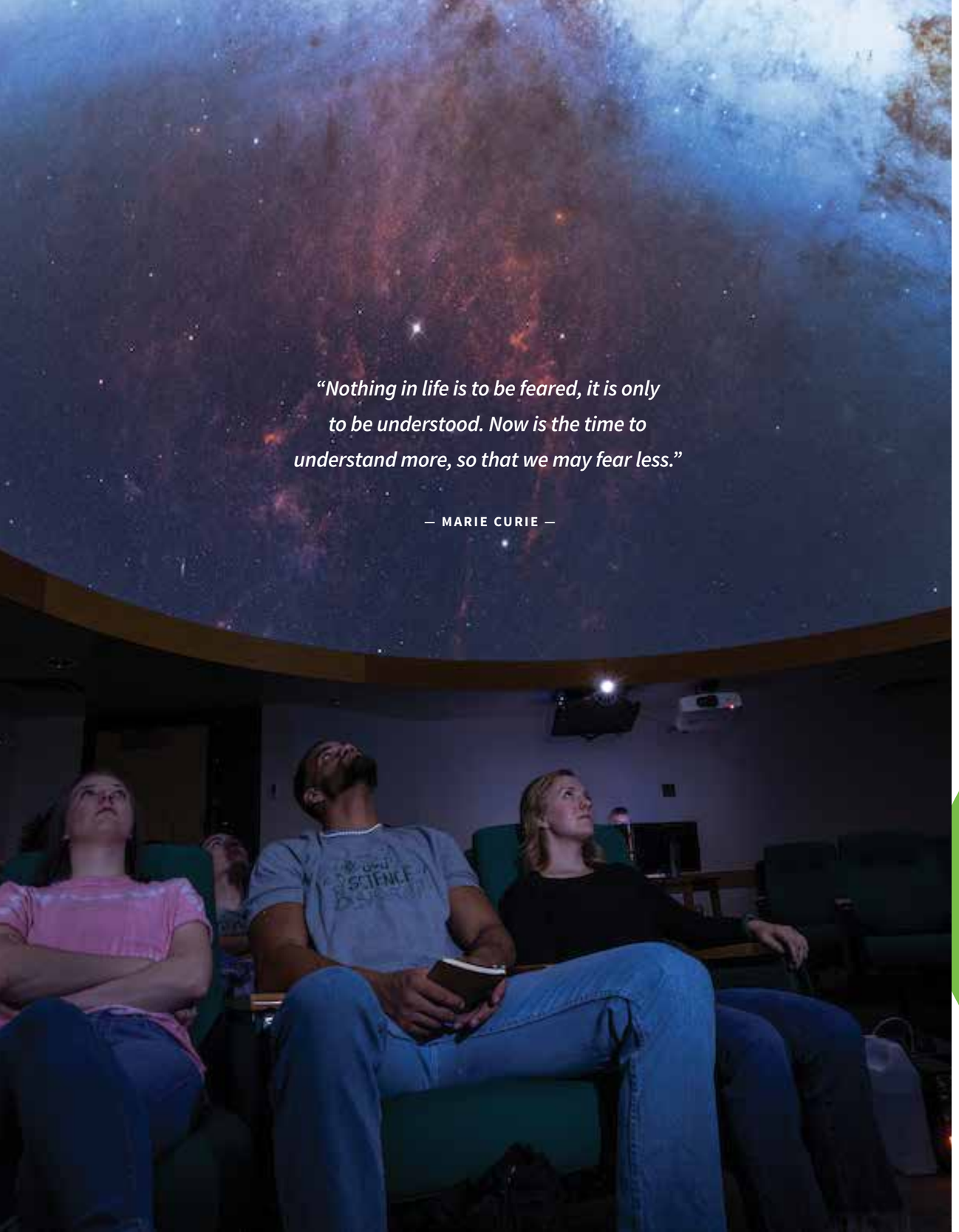
COLLEGE OF SCIENCE



Improving Lives Through Science

How Utah Valley University’s College of Science Is Making a Difference

As we begin a new academic year in the College of Science at Utah Valley University, I am excited to reflect on the incredible impact our graduates are making in the world. While many of our students initially come to us with the goal of becoming medical doctors, we encourage them to explore the wide range of opportunities available to them in every field of science.

Our graduates are making a difference in countless ways, from working as physicians and scientists in Utah’s thriving biomedical industry to developing products for nutraceutical companies to identifying valuable mineral resources. They are helping to ensure a safe water supply, leading the way in the outdoor recreation economy, and conducting analyses that help a variety of industries thrive. And, of course, graduates from all of our departments are teaching at the secondary level, shaping the minds of future generations.

The common thread among all of our graduates is their desire to help people. While many of them do go on to become doctors, they also recognize that every field of science provides opportunities to make a difference in the world. They are using their knowledge and skills to keep people healthy and safe, to grow and maintain a healthy economy, and to educate and inspire others.

As we move forward, I am proud to lead a college that is making Utah healthier and wealthier through the pursuit of scientific knowledge. I look forward to another year of growth and achievement, and I encourage each and every one of you to explore the many opportunities available to you in the College of Science.

Sincerely,

Dr. Daniel Horns
Dean, College of Science

Where Passion Meets Possibility

Reflections of the College of Science

Dear readers,

Welcome to the College of Science's annual magazine! As I sit down to write this editor's note, I find myself captivated by the boundless wonder and beauty of science — a love letter to the extraordinary world of discovery.

Science is experiencing a remarkable revival, where curiosity and innovation intertwine to push the boundaries of knowledge. This pioneering spirit drives our endeavors within the UVU College of Science. Our collective passion for unraveling the mysteries of the universe fuels our tireless pursuit of truth.

This is my first year at the College of Science, and I have been astounded by the exceptional collaboration within our institution. Students, faculty, and staff come together, forming a vibrant community dedicated to advancing scientific understanding. The dynamic exchange of ideas across our departments — biology, chemistry, earth science, exercise science and outdoor recreation, physics, math, and mathematical and quantitative reasoning — creates an environment rife with intellectual stimulation.

But what truly sets the College of Science apart is the unwavering love and passion for discovery that permeates every aspect of our work. From the microscopic intricacies of cellular processes to the grandeur of astrophysical phenomena, we embrace the profound awe that science evokes. Through this lens of appreciation, we witness science defying everything we think we know about the world.

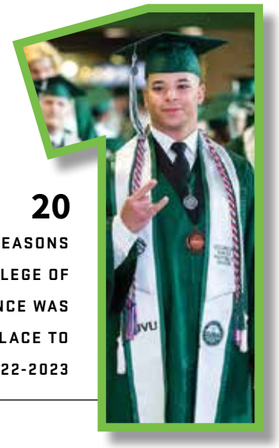
To our current students, I want to express my admiration for your dedication and passion. Your tireless pursuit of knowledge and your commitment to excellence inspire us all. Remember that you are part of a supportive network of faculty, staff, and fellow students who are here to guide and uplift you along the way. Embrace the challenges you encounter, for they are the stepping stones to growth and the catalysts for transformative discoveries.

Together, let us forge ahead on this exciting journey of scientific exploration. As we unravel the mysteries of life, delve into the intricacies of the natural world, and unlock the hidden truths of the cosmos, let our collective love for science propel us forward. In the face of the unknown, may our hearts be filled with wonder, and may our spirits be fueled by the limitless possibilities that science presents.

With heartfelt enthusiasm,

Chris González, M.Ed.
Marketing and Communications Manager
College of Science

You have chosen a path that holds infinite possibilities, and we are thrilled to have you.



20
TOP REASONS THE COLLEGE OF SCIENCE WAS THE PLACE TO BE IN 2022-2023

15
UVU ALUMNA, SCIENCE TEACHER SOARS INTO THE STRATOSPHERE

38
REVOLUTIONIZING ASTROPHYSICS

16
ESSENTIALS FOR SCIENCE STUDENTS

32
UVU SUSTAINABILITY SUMMIT: LEADING THE WAY TOWARD A GREENER FUTURE

UVU A PLACE FOR YOU™

The College of Science is where research thrives and academic excellence is celebrated. With a dynamic blend of faculty expertise, diverse majors, and a supportive learning environment, our college is a hub of scientific exploration and student success. Let's embark on a journey to discover the remarkable achievements and opportunities that define the College of Science.

A PLACE FOR FACULTY-MENTORED RESEARCH

Each year, over 400 COS students engage in faculty-mentored research. Through these hands-on experiences, students apply theoretical knowledge to real-world situations, fostering critical thinking, problem-solving, and innovation while advancing scientific knowledge across various disciplines.

A PLACE FOR VIBRANT ACADEMIC COMMUNITIES

COS boasts a vibrant academic community, with nearly 3,000 students majoring in the sciences. Supported by 142 full-time faculty members and 42 staff members, students receive individual attention and guidance throughout their academic journeys, contributing to student success.

A PLACE FOR POPULAR MAJORS

COS offers a range of majors, with biology, exercise science, and math being the most common choices. These programs attract students who are passionate about unraveling life's complexities, understanding the human body, and exploring the fundamental principles of mathematics. These diverse majors allow students to pursue their scientific interests and prepare for future careers.

A PLACE FOR GENDER DIVERSITY

We actively promote gender diversity within the COS student body. In fall 2022, the percentage of female students in the college reached 43.23%, compared to 38.66% in fall 2018. This positive trend reflects the college's efforts to create an inclusive environment that encourages and supports women in scientific disciplines. The growing presence of women enhances the diversity of thought and perspectives, enriching the academic experience for all students.

A PLACE FOR SUCCESS IN GRADUATE STUDIES

COS stands out in preparing students for advanced education. A remarkable 45% of CoS alumni pursue graduate degrees within a year of graduating, surpassing UVU's other colleges and schools. This achievement demonstrates the college's effectiveness in equipping students with the skills and knowledge for academic and professional success.

A PLACE FOR EXCEPTIONAL STUDENT EXPERIENCES

We take pride in providing exceptional student experiences, as evidenced by feedback from graduates. An impressive 98% of COS alumni rate their experiences as excellent or good. This high satisfaction level reflects the college's commitment to delivering quality education, research opportunities, and comprehensive support.

COLLEGE OF SCIENCE STATISTICS

UVU's College of Science is a hub of scientific excellence, research opportunities, and academic support.

There are almost **3,000** students majoring in the sciences taught by **142** full-time faculty and assisted by **42** staff

Most Common Majors

- BIOLOGY
- EXERCISE SCIENCE
- MATH

98% of our graduates rate their experience in the College of Science as excellent or good

45% of College of Science alumni are pursuing graduate degrees within a year of graduating

(this is the most of any college or school at UVU)

400+ students conduct faculty-mentored research in the College of Science each year

Source: UVU College of Science, Institutional Research

Igniting the Spark of Scientific Passion

Our Dedication To Inspiring and Mentoring Future Scientists

TOGETHER, WE ARE SHAPING A FUTURE WHERE SCIENTIFIC DISCOVERY AND UNDERSTANDING THRIVE.

At the UVU College of Science, our mission is to build the scientific economy and promote scientific literacy in the Wasatch Front region and beyond. We are committed to empowering the next generation of scientists and providing them with knowledge, skills, and opportunities to succeed in scientific professions or pursue advanced studies. Through our academic degrees, certificates, and courses, we strive to create an innovative atmosphere that fosters personal and professional growth for our students, faculty, staff, and stakeholders.

At the heart of our mission is the development and delivery of high-quality courses and programs that enable students to excel in scientific fields. We believe in the power of engaging and inclusive teaching methodologies that stimulate learning and enhance knowledge retention. Beyond the classroom, we provide various engaged learning opportunities, such as faculty-mentored student research, internships, service learning, and extracurricular field experiences. These experiences complement our teaching efforts and ignite a passion for scientific inquiry and discovery.

We are dedicated to supporting and nurturing the next generation of scientists, so we prioritize faculty expertise and continuous growth. We encourage our faculty to engage in research activities to stay at the forefront of their disciplines. Additionally, we provide training in effective teaching methods to ensure our students receive the best education possible. Effective advising is also a key aspect of our commitment to student success.

Our dedication to the next generation of scientists extends beyond our campus. We actively engage with the K-12 community and the public to promote science and science education. We aim to inspire young minds and cultivate interest in scientific exploration from an early age. By instilling a passion for science in the next generation, we can contribute to a brighter and more scientifically literate future.

To ensure the sustainability of our mission, we cultivate understanding and support among our constituents. We establish strong partnerships with corporations, communities, and alumni and actively pursue fund development initiatives. These resources are essential for us to continue providing exceptional educational experiences, fostering research opportunities, and expanding outreach efforts.

Together, we are shaping a future where scientific discovery and understanding thrive.

Nurturing Student Success

How the College of Science Leads the Way

The College of Science takes great pride in promoting student success. We embrace our mission of providing holistic education and facilitating the attainment of terminal degrees and strive to create an environment where individuals thrive personally and professionally. Guided by our core values of exceptional care, exceptional accountability, and exceptional results, we are committed to supporting student success in diverse scientific disciplines.

EXCEPTIONAL

CARE

Exceptional care lies at the heart of our mission. We recognize that student success encompasses more than just academic achievements. That's why our faculty and staff go the extra mile to cultivate an inclusive and supportive community where students feel valued, respected, and inspired. Our academic advisors and mentors provide personalized guidance, fostering an environment of growth. We also offer opportunities for students to engage in research, internships, and hands-on experiences. Through exceptional care, we empower students to thrive in their scientific pursuits.

ACCOUNTABILITY

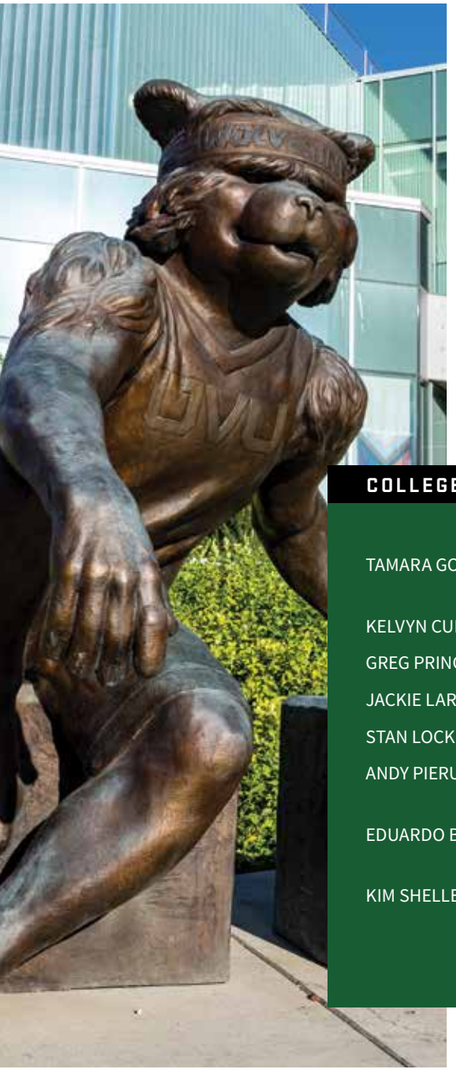
Accountability is a cornerstone of our approach to student success. We uphold rigorous academic standards and offer challenging programs that prepare students for the complexities of their scientific fields. Our curriculum emphasizes scientific inquiry, critical thinking, and problem-solving, instilling a sense of responsibility in our students. Our faculty members take pride in delivering high-quality instruction and mentoring, while students are encouraged to take ownership of their learningjourneys. We strongly emphasize ethical conduct and foster integrity, equipping students to contribute responsibly and ethically to the scientific community.

RESULTS

We are dedicated to delivering exceptional results by producing graduates who are well-prepared to excel. Our comprehensive range of programs, such as biology, chemistry, physics, mathematics, and environmental science, combines rigorous coursework with hands-on experiences, research opportunities, and industry partnerships. Our laboratories, technologies, and collaborations with accomplished faculty ensure students receive top-tier educations. Through experiential learning and practical applications, we equip graduates with skills, knowledge, and critical thinking abilities to succeed in the scientific workforce or pursue advanced studies.

Unleashing the Wolverine Spirit

Tips for Student Success From the College of Science Advisory Board



As members of the College of Science Advisory Board, we extend a warm welcome to the new school year, where we will witness the arrival of some of the brightest students on campus within COS.

We draw inspiration from the tenacity and grit embodied by the wolverine, a symbol of strength, determination, and teamwork. Here are three tips to help you succeed and reach your full potential this upcoming school year.

Embrace adversity as an opportunity for growth.

Adversity is a precious gift, not a setback. It challenges us, pushes our limits, and helps us uncover hidden strengths. We can learn, grow, and develop resilience by overcoming these challenges. Each obstacle is an opportunity to build character, refine skills, and emerge stronger.

Cultivate tenacity and grit.

The wolverine's strength and endurance allow us to persevere through hardships, focus on long-term goals, and stay determined. Students can foster resilience by setting realistic goals, breaking them into manageable steps, and persisting despite obstacles. Develop discipline, practice time management, and seek support from mentors, peers, and COS resources. Remember, pushing forward amidst challenges distinguishes the extraordinary from the ordinary.

Foster collaboration and community engagement.

Build strong support networks by participating in student organizations, engaging with professors, and connecting with fellow students. Collaboration promotes shared learning, provides diverse perspectives, and enhances problem-solving abilities. Additionally, you can contribute to the larger community through volunteering, research projects, or internships. Community engagement enriches your educational experience and opens doors to valuable connections and future opportunities.

As the COS Advisory Board, we believe in your potential to overcome challenges and succeed. Embrace the wolverine's tenacity, grit, and teamwork to thrive in your journey. Adversity is a gift that cultivates resilience and unlocks your full potential.

COLLEGE OF SCIENCE ADVISORY BOARD

TAMARA GOETZ	Executive Director, Utah STEM Action Center
KELVYN CULLIMORE	CEO of BioUtah
GREG PRINCE	Biotech Innovator
JACKIE LARSON	CEO of Centro Hispano
STAN LOCKHART	Founder of The Lockhart Group
ANDY PIERUCCI	Manager of State and Local Affairs at Northrop Grumman
EDUARDO BACA CUENCA	Consul of Mexico in Salt Lake City
KIM SHELLEY	Executive Director of the Utah Department of Environmental Quality

Charting Your Success

Discover a World of Possibilities in Science

HEY THERE, WOLVERINES!

Starting college can be overwhelming, but fear not! We're the College of Science academic advising team, your dedicated partners at UVU. We'll help you choose classes, chart your degree, and guide you through your UVU adventure.

Together, we'll explore your academic pursuits, career goals, and personal aspirations. Join the COS community, surrounded by like-minded individuals passionate about science. We'll be by your side, providing support and resources as you thrive.

We're more than just advisors; we're here to help you carve your unique path. Meet your advisors: Bobby Hughes, Gian Pierotti, Katie Stevens, Mckinzie Greer, Mandy Halloran, Kevin Wilson, Kirsten, and Melissa. Welcome to UVU and the College of Science!

Schedule a 1:1

uvu.edu/science/advising.html

SCIENCE DIARIES

A Day in the Life of a UVU Science Student

BOTANY

I'm Joe Fife and I'm a Botanist

Botany is our connection to the natural world. Everything originates from plants, which honestly keeps the world going around. Botany has so many different facets, which allow you to learn something new every day, regardless of whether you are a freshman or a senior. I think students should want to study botany because the faculty are amazing and personable. Second, it is an extremely fascinating subject. There are so many options for botanists after school; it's the full package. My time at Capitol Reef was honestly breath-taking. You get to go down there, live inside the national park, and work with Ph.D.s and master's from a ton of different fields, including bachelor's degrees, and you do so many different things. That's honestly incredible. I had the opportunity to work with the foremost scientists in the country.

EARTH SCIENCE

I'm Brittany Spencer and I'm an Earth Scientist

One great thing about my major is the professors. They don't see us just as a group of students, but they want to get to know us, our interests, and goals, and they show it. They get so excited about helping with research projects. Every earth science teacher provides some type of notice about research opportunities in the earth science department. I even had the opportunity to use a drone and do GIS mapping. Although I am studying environmental science management, there are numerous career paths available with this degree. It's not just one thing I have to choose; there are tons of different fields I can explore.

I would definitely recommend this program to people because I find it very interesting and I love being outdoors, and this department provides that. There are many cool things to learn in this department.

CHEMISTRY

I'm Rob Patterson and I'm a Chemistry Educator

As a child, I had the idea of becoming a scientist. However, I ended up taking a different path in school, focusing more on athletics. I pursued a career in information systems and worked in that field for 20 years. Eventually, I decided to return to school to pursue a chemistry education. I wanted to do something more meaningful in the second half of my life.

As a chemistry student, I am provided with everything I need to succeed. This includes self-determination, a willingness to study hard, and the importance of finding communities where I can form study groups and work as a team. In the chemistry department, I have had the opportunity to work with a research mentor. We are currently studying soil around the lake, specifically looking for pesticides. This research involves traveling to different locations, collecting soil samples, and analyzing them for dangerous pesticides.

Working with my professors has been inspiring. I see individuals who have dedicated their lives to science.

EXERCISE SCIENCE

I'm Brooks Mickelsen and I'm an Exercise Scientist

I want to become an orthopedic surgeon, so after completing my undergraduate studies, I will be attending medical school. Then, we are off and running. Studying exercise science has truly helped me acquire an in-depth understanding of the human body and its workings in sports, which is something I am immensely passionate about, along with physical exercise. This subject has successfully brought together all of my interests. It is the ideal major for me because it aligns perfectly with my desired career path in the medical field, specifically aimed at assisting individuals with athletics-related injuries. I highly recommend this program due to the exceptional professors and their ongoing research, which provides valuable insights into finding the best fit for your needs.

MATH

I'm Nate Lovett and I'm a Mathematician

I love my major because of all the wonderful things that I get to learn. It is really fun and helps me feel closer to a truth in the universe around us that I don't feel like I've ever felt closer to in any other things I've studied before. To be a math student in the College of Science to me has meant being immersed amidst faculty that are passionate about what they teach. It means being surrounded by students that are all very devoted to the subject. If there's ever anything I don't know how to do, I go to any of my professors, and they not only help me know how to do it, but they make sure I understand it.

The world needs more mathematicians ... I feel prepared to learn how to excel in whatever career I may choose.

PHYSICS

I'm Sydney Holt and I'm a Physicist

I studied physics because, since a young age, I've always been kind of curious about how the world works, asking questions that I'm sure drove my parents insane. It's one thing when you're a toddler, but then you have to choose a life path, and someone says, "You can just ask questions about things like space for a living," and I'm like, "Sign me up!" It's great because you're surrounded by like-minded people, professors, and faculty who want to see you succeed. I chose to do research because it's one thing to learn things in class, but getting your hands dirty with this sort of investigation shows you the efforts that scientists before you have made. It also helps prepare you for a career in asking these questions that don't yet have answers, and having to be content with not knowing all the answers right away.

When you learn about these things, it gives you a greater appreciation of how the world works, how we use physics to improve our lives through technology, and how it helps us understand the world and ourselves better.

From Workshops to Hot Sauce Challenges

The College of Science Is Thrilled To Share a Vibrant Lineup of Weekly Events That Enrich Your Academic Journeys

HOLLYWOOD VS. SCIENCE

A student favorite is our Hollywood vs. Science Movie Series, where we dive into the scientific accuracy of blockbuster films and engage in thought-provoking discussions. These events create an environment of intellectual curiosity and exploration, igniting our passion for science and fostering a strong sense of camaraderie among students.

SCIENCE WORKSHOPS

The COS Science Workshops are curated to empower. These workshops provide invaluable guidance, helping us excel in our scientific studies and cultivate a deeper understanding of the subject matter. They are a fantastic opportunity to sharpen our skills and connect with fellow science enthusiasts.

SEARING SCOVILLE'S

COS' exciting event called "Searing Scoville's" is our own spin on the popular YouTube show "Hot Ones." It's a thrilling experience where we put our taste buds and spice tolerance to the test, sampling a variety of hot sauces that escalate in intensity. The event fosters a lively and enjoyable atmosphere,
bringing us together as a community.

Unveiling Utah Valley's Invisible Contaminants

Dr. Sally Rocks' Research on Microplastics and Organic Pesticides

In the realm of environmental science and chemistry, the efforts of researchers like Dr. Sally Rocks are vital to uncovering how pollution impacts our planet. Dr. Rocks, a professor and researcher in bioinorganic and environmental chemistry, is unraveling how pollution impacts Utah Valley's air, sediment, and water. Her research delves into two critical areas: microplastic pollution and organic pesticide accumulation.

Revealing Utah Valley's Invisible Contaminants

Small plastic particles called microplastics measure less than 5 mm, and have infiltrated even the most remote areas, including Utah Valley's pristine landscapes. By quantifying microplastic quantities in Utah Lake water and sediment, the Provo River, and snow in the Wasatch Mountains, Dr. Rocks aims to understand the sources, accumulation patterns, and potential impacts of these pollutants.

Examining Organic Contaminants in Utah Lake

Dr. Rocks has recently embarked on a project examining the accumulation of organic pesticides in Utah Lake's sediment and water. These stable compounds, known to disrupt the human endocrine system, pose potential threats to the environment and human health. By quantifying and analyzing pesticide levels, Dr. Rocks aims to assess their impact on Utah Valley's ecosystem and raise awareness about their implications.

Unveiling the Secrets of Contaminants

Dr. Rocks relies on cutting-edge analytical instrumentation to uncover the secrets hidden within environmental contaminants. In her analytical chemistry lab, students gain hands-on experience in operating these instruments. Fluorescent microscopy and Raman spectroscopy play pivotal roles in identifying and quantifying microplastic particles. Furthermore, the lab's brand-new liquid chromatography instrument enables precise analysis of organic pesticides, empowering the team to develop innovative research methodologies.

Dr. Rocks is continuously pushing the boundaries of knowledge, advancing our understanding of environmental contaminants and the way toward a cleaner and healthier future for Utah Valley.

Making UVU a Better Place

College of Science's Contributions at UVU

Sarah Bateman, *Sustainability Outreach Program Manager, Sustainability Department*

The College of Science has been a dedicated leader and partner in sustainability efforts at UVU and beyond. In October 2022, COS-affiliated students, faculty, and staff displayed booths at the Sustainability Fair, teaching about water conservation, composting, pollinators, microgreens, and how to get involved with the Botany Club. The 2nd Annual Sustainability Summit in April 2023 convened individuals from the UVU campus community, government and business leaders, nonprofits, and the general public. Of the 32 presenters (from UVU and the larger Utah County community), 25% were affiliated with the College of Science, the largest of any group represented.

Leading the Way in Inclusion

UVU College of Science Garners Two Prestigious Awards

This past year, the College of Science won two prestigious Champions of Inclusion Awards from UVU's Office of Inclusion and Diversity: the Faculty Award and the EID Committee Champion Award.

Faculty Award: Erin Riggs

Erin Riggs, the director-curator of the UVU Herbarium, has been awarded the prestigious Faculty Award for her outstanding commitment to promoting equity, inclusion, and diversity within the College of Science. Riggs is a true inspiration to her colleagues and fellow students, and her unwavering dedication has profoundly impacted the UVU community.

Riggs has been a driving force in creating opportunities for underrepresented students in the field of science. As a mentor and advocate, she has actively supported students from diverse backgrounds, empowering them to pursue their passions and excel academically. Her teaching methods emphasize open dialogue, respect for different perspectives, and a welcoming environment for students. Riggs' mentorship has helped break down barriers and ensure every student feels valued and supported.

In addition to her role as an educator, Riggs has promoted equity and diversity within UVU's scientific community. She has spearheaded initiatives to recruit and retain a diverse faculty, aiming to create an inclusive environment where individuals from all backgrounds can thrive. Riggs has actively contributed to developing policies and practices that address disparities and foster equal opportunities.

EID Committee Champion Award: The College of Science Equity, Inclusion, and Diversity Committee

The COS Equity, Inclusion, and Diversity Committee has been at the forefront of fostering a culture of inclusivity and respect within the College of Science. Their dedication has resulted in an environment that celebrates diversity and values differences. Through initiatives, programs, and events, the committee has raised awareness and facilitated meaningful discussions on topics like gender equality, cultural awareness, and social justice.

The committee has organized engaging workshops, training sessions, and other educational activities to provide essential resources and support networks for students, faculty, and staff. By actively engaging with the community, the committee has created a space where every voice is heard and respected.

Who Says Wolverines Can't Fly?

UVU Alumna, Science Teacher Soars Into the Stratosphere

NOVEMBER 04, 2022 By Nick Gledhill

UVU alumna and Draper Park Middle School teacher Jennifer Muir ('07) proved they can. She was among a prestigious group of science teachers selected to travel to the edge of space. Muir and 24 other teachers from across the nation left Earth as part of a NASA-affiliated teacher-training program. She traveled on the Stratospheric Observatory for Infrared Astronomy (SOFIA) as a NASA Airborne Astronomy Ambassador (AAA). The expedition included multiple trips onboard a modified Boeing 747.

During the three 3-hour flights into the Earth's stratosphere, Muir and other science educators used the craft's two-and-a-half-meter telescope to capture images of Earth's moon. The crew mapped the lunar surface, searching for water. The teachers shared the spacecraft with pilots, flight engineers, and aerospace engineers.

"It was just amazing," Muir said. "To see the telescope operators and pilots working together aboard the flight was fantastic."

Yet Muir's dreams of touching the edge of space didn't always seem likely.

"I was an at-risk kid in high school," Muir said. "I was kind of a troublemaker, so I did not graduate from high school right when I was supposed to. But I did get my act together after realizing, 'Oh my gosh, what am I doing with myself?' I started going to school when I was 19, though it took me a while to get my degree because I was on my own paying for college."

Muir was working for Provo School District while attending UVU. Still undecided about her major, Muir's life was changed when she listened to Dean Danny Horns, a professor at UVU, which was at that time called Utah Valley State College.

"Danny Horns came into my class near the end of the semester and gave a little spiel about the Earth science program," Muir recalled. "It was relatively new then, and it's such a great program. I loved my experience in the Earth science major. I still keep in touch with Danny today."

Today, Muir uses her experience aboard the SOFIA to inspire and engage her students in STEM.

"Now I teach what I learned to my students," Muir said. "The scientists, pilots, and engineers aboard the SOFIA are used to talking to educators and helping us teachers get as much out of the experience as we can."

Following her stratospheric voyage, Muir returned from Palmdale, California, to Draper, Utah, to recount her adventures to her eager students.

"I wore my NASA jacket to school because they've been begging me to bring that," Muir said. "Now, of course, they want me to take a whole day just to show them pictures and talk about [the SOFIA]".

Muir said she hopes her experiences and curriculum will inspire her students to reach for the stars.

"The point of the whole thing is to get as many kids exposed to NASA and STEM curriculum as possible," Muir said. "And the best way to do that is to give teachers the experience. By me getting that experience, that information will be spread to hundreds of kids over the years."

Essentials for Science Students

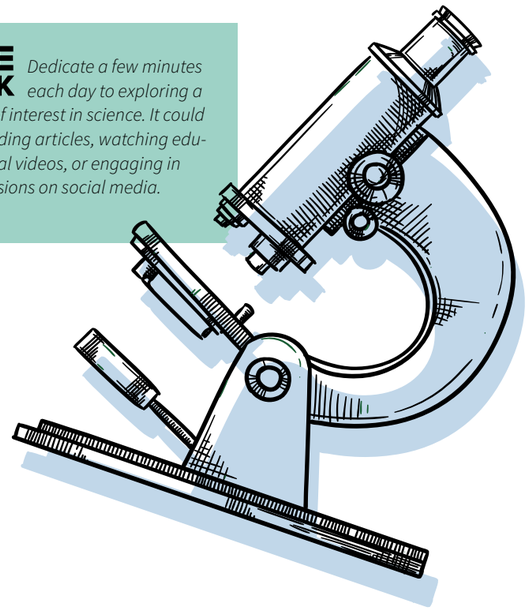
What Every Aspiring Scientist Should Know

Embarking on a journey as a science student is an exciting and challenging endeavor. As you step into the world of scientific exploration, it's important to equip yourself with the knowledge and skills necessary to excel. Whether you're just starting your academic journey or furthering your studies, here are some essential things every science student should know.

EMBRACE CURIOSITY

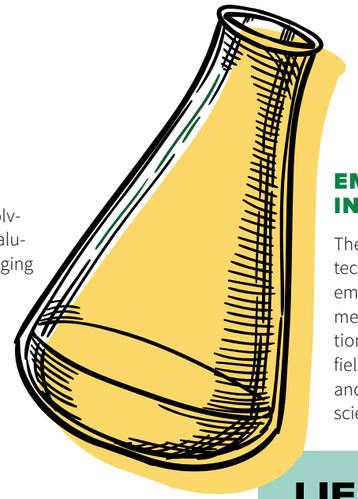
Curiosity is the driving force behind scientific discovery. As a science student, it's crucial to nurture your innate sense of curiosity. Ask questions, explore different perspectives, and seek answers beyond the surface. Embracing curiosity will lead you to exciting breakthroughs and a deeper understanding of the world around you.

LIFE HACK *Dedicate a few minutes each day to exploring a topic of interest in science. It could be reading articles, watching educational videos, or engaging in discussions on social media.*



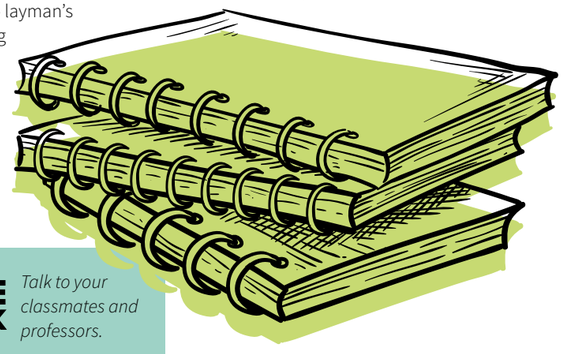
DEVELOP CRITICAL THINKING

Science is all about critical thinking and problem-solving. Cultivate your ability to analyze information, evaluate evidence, and think logically. Be open to challenging your own assumptions and embracing new ideas. Developing critical thinking skills will empower you to make informed decisions, conduct thorough research, and contribute meaningfully to scientific advancements.



MASTER EFFECTIVE COMMUNICATION

Science doesn't exist in isolation. To share your findings, collaborate with peers, and engage with the scientific community, you must be an effective communicator. Hone your written and verbal communication skills, ensuring clarity, precision, and coherence. Learn to distill complex concepts into layman's terms, making science accessible to a broader audience.



LIFE HACK *Talk to your classmates and professors.*

PRACTICE TIME MANAGEMENT

Science demands dedication and perseverance. Effective time management skills are essential for balancing coursework, research, and personal commitments. Create a schedule, prioritize tasks, and allocate sufficient time for studying, experimentation, and rest. By managing your time efficiently, you'll maintain a healthy work-life balance and stay on track for success.

LIFE HACK *Use productivity apps or tools to be more efficient in your studies. Take short breaks to enhance productivity and prevent burnout. Buy a planner and use sticky notes.*

EMBRACE TECHNOLOGY AND INNOVATION

The world of science is constantly evolving, driven by technological advancements and innovation. Embrace emerging technologies, such as laboratory equipment, data analysis software, and scientific simulations. Stay informed about the latest trends in your field and adapt to changes. By harnessing technology and embracing innovation, you'll be at the forefront of scientific progress.

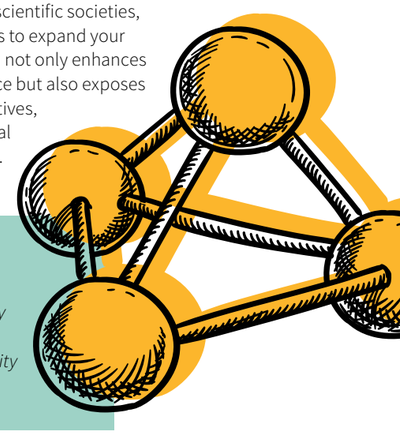
LIFE HACK *Follow influential scientists or organizations on social media platforms like Twitter or LinkedIn to stay updated on your field's latest advancements, research studies, and technological breakthroughs.*

DEVELOP RESILIENCE

Science, like any discipline, comes with its fair share of challenges and setbacks. Develop resilience and embrace failures as learning opportunities. Persevere through experiments that don't yield expected results and learn from mistakes. Resilience will help you bounce back stronger and fuel your determination to unravel the mysteries of the universe.

FOSTER COLLABORATION

Science thrives on collaboration. Seek opportunities to work with fellow students, professors, and researchers. Engage in group projects, join scientific societies, and attend conferences to expand your network. Collaboration not only enhances your learning experience but also exposes you to diverse perspectives, new ideas, and potential research opportunities.



LIFE HACK *Develop relationships with your classmates, especially those in your major. They will become your community and support group.*

Being a science student is a remarkable journey filled with endless possibilities. By embracing the tips above, you'll lay a strong foundation for success. Remember, the essentials of a science student extend beyond the classroom and into the realm of personal growth and contribution to society. May your passion for science illuminate the path to a brighter future.

Discovering Nature's Hotspot

Unveiling Yellowstone National Park's Geological Marvels

Led by our earth science faculty members, the Department of Earth Science at the College of Science provides a unique engaged learning opportunity for all students at UVU. Every fall, students are invited to embark on an expedition to Yellowstone National Park, offering a chance to engage in hands-on fieldwork and explore Earth's geological wonders.

This journey is designed to cultivate a scientific mindset by submerging students in a world of scientific observation and exploration. Equipped with a keen eye and geological expertise, the students identify and interpret the geological materials and features scattered throughout the park, uncovering the forces of nature that have shaped these awe-inspiring landscapes.

Through their participation in actual fieldwork, they apply their knowledge in real-life scenarios and gain experience in conducting scientific research. From the vibrant colors of the geothermal features to the bubbling hot springs and powerful geysers, each discovery shows the power and beauty of Earth's geological processes. Working side by side with experienced researchers, the students refine their skills and develop profound appreciation for geology and nature and an understanding of the world.

Carving Through Time

The Geological Saga of the Grand Canyon

EVERY YEAR, FACULTY MEMBERS FROM THE DEPARTMENT OF EARTH SCIENCE EMBARK ON AN EXTRAORDINARY SCIENTIFIC EXPEDITION, TAKING UVU STUDENTS ON A CAPTIVATING JOURNEY THROUGH TIME WITHIN THE GRAND CANYON.

Every year, faculty members from the Department of Earth Science embark on an extraordinary scientific expedition, taking UVU students on a captivating journey through time within the Grand Canyon.

This adventure aims to unravel the secrets of Earth's geological narrative, offering an understanding of the events that have shaped this awe-inspiring landscape. Each step they take reveals vibrant hues adorning canyon walls, unveiling chapters of Earth's geological saga and providing a glimpse into the transformative forces at play over millions of years. These explorations foster a deep appreciation for the connections between geological processes and the passage of time and allow us to bear witness to the Grand Canyon's beauty.

Expeditions like these provide students with unforgettable experiences and serve as catalysts for scientific growth. Through these journeys, the Department of Earth Science showcases its commitment to fostering scientific curiosity and instilling respect for Earth's geological heritage. By venturing into these geological wonders, students forge a lasting bond with the natural world, fueling their passion for scientific inquiry and igniting a lifelong quest to unravel the mysteries that lie beneath our feet.

Top Reasons the College of Science Was the Place To Be In 2022-2023

From groundbreaking research to inspiring events, this collection celebrates our college community's vibrant spirit. Throughout the year, students, faculty, and staff explored the wonders of science, embraced diversity, and pushed the boundaries of knowledge. These stories showcase the passion, dedication, and innovation that define the College of Science, making it a hub of discovery and intellectual growth.

1 GRADUATION

The pinnacle of every student's journey in the College of Science, graduation marks a significant milestone as students receive their well-deserved degrees and embark on their professional paths.

2 EXPLORE THE SCIENCES DAY

An annual event that showcases the diverse fields of study within the COS, allowing students to interact with faculty, explore science majors, and participate in exciting activities such as chemistry and physics magic shows, UVU Planetarium shows, and greenhouse tours.

3 DARWIN DAY

A celebration of scientific inquiry and the legacy of Charles Darwin, this event featured evolution posters, activities, and displays, as well as a keynote speaker, Dr. Joseph L. Graves, who shared insights into evolutionary biology.

4 WOMEN TO WOMEN MENTORING LUNCH

A collaboration between the Women's Success Center, the Office of Inclusion and Diversity, the College of Science, and the Women in Business Impact Lab, this event provided an opportunity for students to connect and network with women in leadership positions across various industries. Attendees enjoyed a free lunch and listened to a keynote speaker, Trina Limpert.

5 UNDER-REPRESENTED STUDENTS IN SCIENCE LUNCH (U-SIS)

This gathering featured a distinguished panel comprising Dr. Tom Cech (Nobel Prize recipient and president of the Howard Hughes Medical Institute), Dr. Rasha Qudisat (UVU's chief inclusion and diversity officer), and Dr. Silvi Rouskin (assistant professor at Harvard Medical School). The panel discussed important topics related to diversity and inclusion in the scientific community.

HIDDEN FIGURES HOLLYWOOD VS SCIENCE

In honor of Women's History Month, this event screened the film "Hidden Figures," which celebrates the achievements of female mathematicians who played a crucial role in NASA's space program. The screening served as a platform to bridge the gap between Hollywood's portrayal of science and the real-life contributions of women in STEM.

6 STEM FEST & SHETECH

A vibrant celebration of STEM, this event brought together students, industry professionals, and educators to engage in interactive workshops, competitions, and exhibitions. SheTech, a program aimed at empowering young women in STEM, was also an integral part of this festival.

FIFA WORLD CUP

College of Science's support for sports extends beyond academia, as the community united to cheer during the thrilling FIFA World Cup matches. One notable match was the USA vs. Iran game, which brought together students, faculty, and staff to celebrate their shared love for soccer.

7 SEARING SCOVILLE'S WITH ELLIS JENSEN

Inspired by the popular YouTube series "Hot Ones," this thrilling challenge invited contestants to answer questions while eating progressively hotter hot sauces. Searing Scoville's added a touch of excitement to the COS community.

10 PI DAY

Celebrated annually on March 14th (3/14), Pi Day pays homage to the mathematical constant π. COS organized various activities, including contests, lectures, and fun competitions, to engage students and promote mathematical awareness.

National Science Foundation Awards $1.5 Million Grant

Expanding Research Opportunities at UVU

The College of Science is pleased to announce that it has been awarded nearly $1.5 million by the National Science Foundation (NSF). The grant will provide at least 40 need-based scholarships that promote student engagement in chemistry, physics, and earth science. Aside from tuition benefits, the NSF funding will also allow STEM students to conduct research.

“This program will provide students with opportunities to conduct research and to develop personal mentorship relationships with members of our faculty,” said Daniel Horns, dean of the College of Science. “Involvement in research and mentoring relationships are both proven to increase retention and completion.”

Joshua Lothringer, assistant professor of physics and the principal investigator on the project, said the scholarships would be combined with a faculty mentorship program, campus and community events, and research and professional development courses. The goal is to enhance preparation, retention, diversity, and outcomes.

“The students that graduate through this program will meet the growing regional and national need for a highly trained STEM workforce,” Lothringer said. “The new program builds off of the previous PRO-STEM program in physical sciences and similar programs in biology and engineering.”

“UVU WILL PRODUCE MORE SCIENTISTS TO HELP GROW THE UTAH ECONOMY,” HORNS SAID. “SCIENTISTS WITH EXPERTISE IN CHEMISTRY, EARTH SCIENCE, AND PHYSICS ARE KEY TO THE DEVELOPMENT OF UTAH’S HIGH-TECH, DEFENSE, BIOMEDICAL, AND ENERGY INDUSTRIES.”

The College of Science has received several grants similar to this one from NSF. Horns said each built a reputation for success.

“The NSF has seen that our faculty step up to serve as effective research mentors and personal mentors and that our students respond exceptionally well,” Horns said. “In fact, the NSF is aware that there has been nearly 100% retention among students involved in similar programs.”

The grant funding opens the door of opportunity for more students to achieve their dreams of completing a college degree and becoming part of the state of Utah’s scientific workforce.

The grant spans six years and will provide up to $7,500 in full-tuition scholarships for up to four years, supplemented by funding to support original research and professional development.

Utah Valley University College of Science Dean Danny Horns Speaks at Utah Business Magazine Economic Outlook Summit

College of Science Dean Danny Horns was one of over 50 innovative speakers at the Utah Business Magazine Economic Outlook Summit on Nov. 17, 2022, in Salt Lake City, Utah. Dr. Horns was a panel speaker for the breakout session “Higher Education and Its Influence on the Employment Market.”

Accompanied by Dr. Brad Winn (Utah State University), Dr. Ravi Krovi (Weber State University), and Dr. Cory Leonard (Brigham Young University), Dr. Horns addressed the issues higher education and the workforce are facing today, including how to build proper skillsets in students and employees.

“There is a difference between job skills and career skills,” Dr. Horns said. “In order for colleges to survive, they need to have input from the workforce on how best to prepare students.”

Over 700 people attended the summit, which aimed to take a deep dive into Utah’s economic landscape in the coming years.

Congratulations, Dean Horns, and thank you for representing the best of higher education!

From Hesitation to Happiness

Ella Yancey’s Transformative Experience in Science

By Livy Andrus

The decision to attend Utah Valley University (UVU) did not come easily to Ella Yancey.

Yancey, a junior studying biology at UVU, is one of only 500 people in the world to experience Neonatal Onset Multisystem Inflammatory Disease (NOMID). This rare disease can cause various symptoms, including stunted growth, hives, migraines, digestive issues, and joint pain. In Yancey’s case, this disease has also caused hearing loss.

“There were some criteria that needed to be met for whatever college I went to,” said Yancey. “It needed to be near Salt Lake City, where my medical providers who knew me were [close enough that I would] not need a helicopter to get to the hospital. The school also needed to fit my budget.”

UVU fit both criteria and though Yancey’s family encouraged her to attend, she was hesitant.

“I felt like going to a school with a [100%] acceptance rate would mean that I wasn’t a good student and I wasn’t challenging myself,” said Yancey. “UVU is also where many of my high school classmates would be going, and I didn’t want to continue to be around the people that had bullied me since childhood.”

Despite her hesitations, Yancey enrolled at UVU as an ASL and Deaf education major. However, since she has always loved and excelled in science courses prior to college, she decided to change her major to biology. Her decision to pursue this field changed her life.

“In general, I love anatomy and how living things work,” said Yancey. “I decided … [to study] biology because it was science-based, which I handle better as I am also autistic. Not only did biology open more doors, but I was more interested in the topics it presented, and it suited me better as a person.”

Yancey said that she soon found community in UVU’s Department of Biology.

“Due to my autism and other health problems, I was frequently alone for most of my childhood and teen years,” said Yancey. “When I got to UVU, this remained the case for another two years. It wasn’t until I entered the Biology 1625 lab that things changed.”

The lab contains a collection of animals that are cared for by student volunteers, and Yancey, who has always loved animals, quickly got involved in the zoology lab. As an animal care volunteer, she handled snakes and taught fellow students about the snake species held on UVU’s campus.

“I also overcame a few fears that I never thought I would face, such as my fear of snakes,” Yancey said.

“I AM NOW THE HAPPIEST I HAVE EVER BEEN IN MY LIFE … I HAVE LEARNED SO MUCH FROM MANY PEOPLE, GAINED SUPPORT AND LOVE FROM FRIENDS I NEVER THOUGHT I WOULD HAVE, AND I LOVE WHERE I AM. MY LIFE WOULD NOT LOOK LIKE THIS IF IT WEREN’T FOR UVU.”

The animals held on UVU’s campus are studied in classes as examples of living specimens. Lab students also bring the animals to local schools to help spark children’s interest in zoology and its many possibilities.

“It is important to study zoology not only because animals of all shapes and sizes are fascinating but also because some of their traits have inspired humans to create new inventions and treatments,” said Yancey.

Yancey will graduate in April with an associate degree in biology and plans to earn her bachelor’s degree in medical laboratory science from the University of Utah.

WOLVERINE STORIES

PEDRO DEL VALLE

Education — it was said that it was an option, but I was never shown how to achieve it. Either you have to work hard, you have to have a job, or go to school. But school wasn't really shown for me. The former was definitely shown more than the latter. [At UVU] I was shown a very different aspect of education, especially with the teachers and the mentors here. They were passionate about what they did and passionate about teaching students.

The advice I would give to current students is to do what you want to do … [My family] always told me that I could do whatever I wanted. Don't worry about those pressures from outside.

KATE HICKMAN

If there's a dream that you want to achieve, it is within your ability to grasp. You just have to prepare yourself and set yourself up in the ways that you need to achieve that goal. I'm so glad that I decided to say no to that fear, imposter syndrome, and this limited idea about what I could do. Because now, here I am, admitted to MIT, about to start this journey that I thought was impossible for me.

UVU is a place for you to grow, achieve, and to push the boundaries of what you even thought possible. And if you're willing to look around, do a little bit of extra work, and be engaged even when you feel tired, those opportunities will present themselves to you.

NELLIE HUGHES

It's never too late to do what you want to do, and you're never too old to get involved. You're going to go through ups and downs with your education, and sometimes you're going to feel like you are unable to learn something — that it's just not coming easily to you. But you can always work through that, and with the help of your professors and other people in your life, it's possible to get through any challenges. UVU is definitely a place where people are there to help you along the way and to help you grow and become a better person than you were before.

RANDY KWON

For me, UVU has been a place where I can excel academically. I've been able to learn a lot. I have so many memories of being in this library, on the fourth floor, from 9 a.m. to midnight, five days a week. I look back on that crazy semester, and it was fun. I liked it. It was really hard studying that amount of time, but I also kind of liked it, as weird as it sounds. I don't know if that's a proud moment, but I am also proud of myself for being able to push myself to do that here at UVU.

Current UVU students — take advantage of the resources that UVU has.

MICHAEL MILIUS

As a new honor student trying to figure out where I wanted to go and what I wanted to do, I sat with Tiffany Nez, and I realized I didn't have to be the cookie-cutter biology major. I could still do all my pre-med stuff and major in what I wanted to do … I didn't have to do exactly what I was told to do on paper. I could just be myself. I could study what I wanted to. And so my advice is to use UVU as an opportunity to figure out what you love and what you like and go with it.

Utah Valley University College of Science Hosts Nobel Prize Recipient in Panel Discussion

DR. TOM CECH
Nobel Laureate & President of the Howard Hughes Medical Institute

DR. SILVI ROUSKIN
Assistant Professor, Harvard Medical School

DR. RASHA QUDISAT
Chief Inclusion and Diversity Officer

Nobel Prize recipient and Howard Hughes Medical Institute president Dr. Tom Cech addressed UVU students on Nov. 29 during the "Finding a Place for You in STEM" panel discussion luncheon hosted by CoS and Underrepresented Students in STEM (USIS).

Other speakers at the event included Harvard Medical School professor Silvi Rouskin and UVU Chief Inclusion and Diversity Officer Dr. Rasha Qudisat. The event aimed to promote inclusivity in STEM fields and help students connect with their professors to forward their academic careers.

"Some people may go by the theory that you do not hold the keys to your success," USIS co-founder and UVU student David Parker said. "That is very untrue. Not only do you hold the keys to your own success, [but] if you approach [professors], they know where the doors are."

"What motivates you is what you hear inside," Dean Horns added.

Dr. Qudisat spoke of her own personal journey as an engineering student in Jordan and how she came to be UVU's chief inclusion and diversity officer.

"Today you will have a great opportunity to walk your extra mile to reach out to all these amazing people and identify what it is exactly that you need," Dr. Qudisat said. "I encourage you today to fill in the blanks. … All you need to do is reach out to these tables and be specific. 'This is what I need for support.' And believe me, you will have an army of resources at your hands for you to be successful."

Dr. Rouskin, a native of Hungary, reminded students that success goes beyond their academic records.

"You must believe in yourself because sometimes no one else will," Dr. Rouskin said. "I hope that you will find people who will support and inspire you.

"YOU MUST BELIEVE IN YOURSELF BECAUSE SOMETIMES NO ONE ELSE WILL," DR. ROUSKIN SAID. "I HOPE THAT YOU WILL FIND PEOPLE WHO WILL SUPPORT AND INSPIRE YOU."

"I just had two examples of friends of mine who have gotten into [Harvard] without a perfect GPA," she said. "They are extremely bright, extremely great, amazing researchers and are doing absolutely fantastic in Harvard. This is just for you to know you don't need the perfect GPA to do great research and to be very successful."

Dr. Cech ended the panel discussion with his remarks on the importance of pursuing your passion.

"You want to be motivated to work," he said. "I always tell beginning graduate students, you do not want to be in graduate school just so that you can have the three letters 'Ph.D.' after your name. You want to have some passion for it."

Dr. Cech won the Nobel Prize in chemistry for his research in ribonucleic acids (RNA). He teaches chemistry at the University of Colorado.

Dr. Hilary Hungerford Has Received the Prestigious Fulbright Scholar Award

She Will Relocate to Mongolia in Spring of 2024

April 05, 2023, by Barb Smith

Dr. Hilary Hungerford has received the prestigious Fulbright Scholar Award. She and her family will live in Mongolia for the spring semester of 2024. Hungerford will teach graduate seminars in sustainability and geography at the National University of Mongolia in Ulaanbaatar.

"I feel so honored to be selected as a Fulbright Scholar," Hungerford said. "To me, being a Fulbright Scholar signals trust and the importance of my work as a scholar and teacher. I am so excited to have a new adventure following the last few years of work with the Faculty Senate."

The Fulbright Scholars program is considered one of the world's most prestigious academic programs. Annually, only about 20% of applicants are selected. This figure, however, does not tell the whole story since the people who even apply are, for the most part, the highest achievers at their institutions. Past Fulbright Scholars include 62 Nobel Prize Laureates and 89 Pulitzer Prize recipients. Hungerford's selection places her in a prestigious group.

"I am absolutely delighted for Dr. Hungerford and for UVU," said Dean Daniel Horns. "This selection recognizes Dr. Hungerford as a world-class scholar. The selection also signals to UVU students that even though they are attending a teaching-focused university, their professors are world leaders in their fields."

Horns said that in addition to the prestige associated with Hungerford's selection, UVU students would benefit directly from the knowledge she will gain as a Fulbright Scholar. "This is a deep dive into Mongolia that will help inform all of Dr. Hungerford's future geography classes."

Hungerford hopes to learn how climate change impacts Mongolian urban centers and rural life. "I want to learn about environments in Mongolia and Asia more broadly so that I can integrate these lessons into my courses at UVU. I want to learn about Mongolian culture and visit historical sites in the country. I want to learn about food and religion in Mongolia. So many things!"

She said Mongolia shares similar environmental challenges faced in Niger and Utah, two primary areas of her focus as a geography educator and scholar. "Arid lands around the world exist in a state of non-equilibrium, and these highly variable environments have proved to be some of the greatest impacted by climate change," Hungerford said. "My work in dryland regions in Niger and Utah over the past 15 years has centered on the role of cities. I now wish to explore these topics in Mongolia with local students, faculty, and experts."

"THIS SELECTION RECOGNIZES DR. HUNGERFORD AS A WORLD-CLASS SCHOLAR. THE SELECTION ALSO SIGNALS TO UVU STUDENTS THAT EVEN THOUGH THEY ARE ATTENDING A TEACHING-FOCUSED UNIVERSITY, THEIR PROFESSORS ARE WORLD LEADERS IN THEIR FIELDS."

Hungerford hopes the relationships she builds in Mongolia will lead to greater engagement in the future. "I'm excited to bring back lessons learned from Mongolia into my research and classes at UVU. Maybe, in the future, I can take UVU students to Mongolia!" she said.

Be Inspired

Insights From Trailblazing Female Scientists in the College of Science

Whenever I've needed anything from them, whether it's regarding homework or seeking advice, they have always been there for me. It really makes an impact to have such great people willing to help me.

Whitney Brownlee, *Biotechnology Major*

I love the hands-on experience that I have in the biotechnology program at UVU. It's incredible because not only do you learn the science behind everything, but you also get to put it into action and apply everything you learn in a classroom setting, going on to do your own independent projects. I have loved working with my professors because you gain real-world experience and receive one-on-one mentorship from actual scientists who have extensive experience in the field. It's truly incredible to be able to learn from them on such a personal level.

By studying biotechnology here at UVU, I have been thoroughly prepared for what the field is truly like. I cherish all the hands-on experience I have gained.

Cassandra McFarland, *Exercise Science Major*

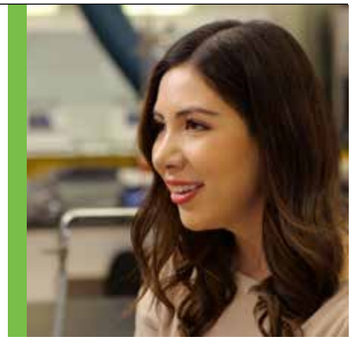
To be on campus studying and being a part of research, and being a scientist, it feels really awesome. Not every undergraduate student gets that opportunity, so I feel truly blessed and grateful for the chances I have to be prepared and learn these things that many students don't get a chance to do. … I don't think people should be intimidated by science at all. There are definitely opportunities for everyone to find their niche, learn, grow, and excel wherever they can excel.

There are definitely opportunities for everyone to find their niche, learn, grow, and excel wherever they can excel.

Silvia Sierra, *Chemistry Major*

I always saw science as something I would never achieve as a kid. ... And then, getting here and having teachers who were so patient helped me learn. It was great for me, and now I get to have so much fun in the lab and witness all these chemical reactions. I really enjoy making those things happen. It's an honor for me to work with my professors because I feel like they're very knowledgeable people. ... They are really, really smart and also very humble. They don't have any issues with helping you anytime.

I didn't think I could be a successful scientist until I got here and learned from people who made me feel comfortable. Now, it kind of makes me feel a little bit powerful, and I believe many women can feel the same way. They are so capable, and we are capable of achieving great things and making a difference in this world.



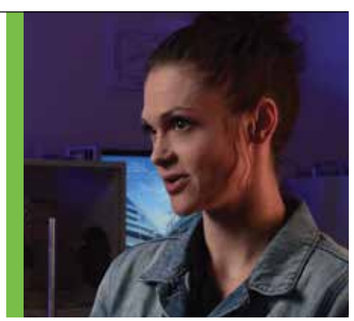
Emily Limb, *Earth Science Education Major*

I feel like as a female scientist, I can surprise a lot of people. I struggled with science, especially in high school, but that is one of the main reasons I want to be a science educator. Because I grew up with so many male science teachers, I believe that if I can see more female science teachers, then other females and individuals who may not think they are as qualified will be inspired to pursue the sciences.

It's okay to feel nervous about science, but take a closer look and see what you can discover.

Kassie Jensen, *Physics Major*

There's so much support and encouragement, and the professors are awesome. I'm even involved in some research, which I really enjoy. They focus on optics and astronomy, specifically studying microplastics in Utah Lake. It's environmentally conscious and has real-world applications, which makes it impactful. When I'm looking through a microscope at these microplastics or identifying galaxies and analyzing data for my astronomy research, I feel like an actual scientist. Honestly, I wish I had pursued science earlier. I didn't see it as a viable option before, but now, at 27, I realize it's never too late. I'm happy that I made the shift. If you have a passion for science, go for it. You're meant to do it.



Celebrating Exceptional Achievement

This Year's Recipients of the Student Excellence Awards

This year's College of Science Student Excellence Awards were a momentous occasion, shining a spotlight on the remarkable achievements and contributions of 18 outstanding COS students.

These recipients have embodied dedication, passion, and scholarly excellence within their respective fields, setting a standard for academic and personal growth. Their commitment to intellectual curiosity and the pursuit of knowledge has left an indelible mark on the college and inspired fellow students and faculty members.

Each award recipient exemplifies the fundamental values of scholarship, innovation, and leadership. Through pursuits of academic excellence, groundbreaking research endeavors, and engagement in extracurricular activities, these individuals have excelled in their studies and contributed to the advancement of scientific knowledge.

Whether unraveling the mysteries of the cosmos or devising solutions to global challenges, these students have meaningfully impacted the College of Science and will undoubtedly do the same in their careers and respective fields. Their passion, perseverance, and commitment to excellence make them trailblazers and role models, igniting a sense of scientific discovery and innovation that extends far beyond college boundaries.

ALLY SIPPLE
Exercise Science & Outdoor Recreation

ERNIE VILELA CASTILLO
Biology

MORGAN PAYNE
Chemistry

JAMES MORELY
Physics

QUETZAL MARTINEZ
Mathematical & Quantitative Reasoning

KRISTEN SMITH
Earth Science

ELI MANU
Mathematics

WHITNEY BROWNLEE
Biology

MINH NGUYEN
Chemistry

DAVID JOHNSON
Earth Science

MOLLY CHRISTENSEN
Physics

CHANTELLE YAZZIE
Biology

KAYLEE ALLEN
Exercise Science & Outdoor Recreation

SIERRA TAYLOR
Mathematical & Quantitative Reasoning

RYAN GREER
Exercise Science & Outdoor Recreation

KATELYN HICKMAN
Biology

ALEC OKELBERRY
Exercise Science & Outdoor Recreation

DANIEL SOUTH
Mathematics

Inspiring a New Generation

Chantelle Yazzie's Journey to Becoming a Doctor

By Livy Andrus

As a child, Chantelle Yazzie knew she wanted to become a doctor.

"From a young age, I was very much interested in helping people get better," said Yazzie, a first-generation senior studying pre-med biology at UVU.

Yazzie is from Rock Point, Arizona, which is located on the Navajo Nation reservation.

Yazzie shadowed several nurses and doctors at a local hospital and discovered that, while she liked the hands-on experiences of nursing, she was drawn to the experiences of being a doctor.

"I liked the idea of being able to solve a puzzle," Yazzie said. "As a doctor, you're given different pieces of information, and then you tie them all together to figure out the big problem, and then you treat it. And that's what interested me."

She was also drawn to the doctor-patient relationship dynamic, especially when she discovered how quickly she could bond with Native American patients.

"When they found out that I was Navajo, they were [impressed] and would immediately start talking to me in Navajo," she said. "We'd form a kinship relationship right off the bat. I was able to help the doctors connect better with the patients and vice versa. After that, I was like, 'This is what I want to do; I want to help bridge the gap in Native American physicians.'"

Since Yazzie began college, she has participated in research projects at several universities. At the University of Colorado Boulder, she studied the properties of the Navajo tea plant. While working in the endocrinology lab at the University of Utah, she studied treatments for diabetic patients. Now, she works in an antibiotic research lab at UVU.

In 2021, Yazzie was recognized by the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) for her research and presentation skills at its National Diversity in STEM digital conference.

"I'm glad I chose UVU because there's a lot of inclusion, and the instructors that I've had for my classes were amazing," Yazzie said. "They really do care about your success as a student. That was very important to me because I wanted teachers to know me as not just a number in the class."

Yazzie said the greatest lesson she learned at UVU is to seize every opportunity you get.

"Even if it doesn't look like it's going to be a good one, just take it anyway because the only thing worse than that is a missed opportunity," Yazzie said. "You'll win some; you'll lose some. Don't let fear stop you from taking opportunities and being the best that you can be."

"I hope that this brings encouragement to the younger generations after me because it's very rare to see a Native American even just going to college," Yazzie said.

Making UVU a Better Place

College of Science's Contributions at UVU

Rachel Messenger, Advisor, First-Year Advising Center

I am an academic counselor for College of Science students in the First-Year Advising Center. Our center's mission is to assist every student in their successful transition to Utah Valley University through engaged and holistic academic counseling.

I regularly receive emails from the advisors, chairs, and dean of the College of Science with resources and events for my students to participate in, and I also see the College of Science leadership at student events on campus such as Latino Initiative events. The dean planned a gathering for first-year College of Science students and plans to continue these efforts in the future!

The level of care and involvement from the College of Science is inspiring.

UVU Sustainability Summit: Leading the Way Toward a Greener Future

During UVU's second annual Sustainability Summit, experts gathered to discuss environmental consciousness and sustainability. One of the prominent speakers was Dr. Michael T. Stevens, director of the UVU Capitol Reef Field Station (CRFS), whose insights on eco-friendly behavior left a lasting impact.

Dr. Stevens shared astounding statistics from the CRFS, highlighting how visitors to the field station produce significantly less trash and consume substantially less water compared to the average American. His presentation underscored the positive impact of nature education and the importance of adopting sustainable practices.

The summit also featured discussions on citizen engagement, sustainability in business, and educational opportunities at UVU. Keynote speaker Danielle Rourke, senior higher education strategist at Dell Technologies, emphasized the significance of sustainability in the tech industry and the steps her company is taking to reduce emissions.

Participants explored UVU's sustainability efforts through a campus tour, which showcased the university's commitment to energy efficiency, water conservation, waste reduction, and community building. The summit's success reflects the growing enthusiasm for sustainability discussions and the collaborative approach to innovation.

THE UVU GRIT GARDEN

donated over

2,500 lbs.

of food to the CARE Hub campus food pantry and has achieved formal USDA status as a "Farm." The garden hopes to double its goal this year to 5,000 lbs. of food donated.

ENERGY

Scott C. and Karen Keller Building is a Utah High-Performance Buildings Standard (HPBS) building.

Scott M. Smith Engineering and Technology Building will also be built to be HPBS and will have an all-electric HVAC system.

UVU's Elektron Solar project aims to provide (net) 93% of the university's energy from the sun.

WATER

UVU plans to reduce 5% of sod space by 2024. Approximately 10 acres of xeriscape freeway berm, islands, parking strips, improvement projects, and the couple cliffs are currently in design.

Plans are in the works to reduce irrigation another by 10%. UVU went from using approximately 120 million to 80 million gallons of water a year in the past few years.

WASTE

UVU is implementing a food-waste-to-energy pilot program. Instead of sending food waste to the landfill where it releases methane into the atmosphere, UVU will send some of its food waste to an anaerobic digester through Wasatch Resource Recovery in North Salt Lake City. The anaerobic digester will capture the methane and use it to heat homes in the community.

TRANSPORTATION/ AIR QUALITY

Anyone with a UVUID has a free UTA pass. UVU supports nearby housing projects so more students are able to walk or take transit.

ACADEMICS

A new environmental studies major will launch in fall of 2023.

TREES PLANTED IN 2022:

127

"UVU Sustainability can always count on the College of Science to provide engaging content and relevant research opportunities that benefit the UVU campus, the Utah County community, and the extended global ecosystem."

SARAH BATEMAN
Sustainability Outreach Program Manager
Sustainability Department

UVU PEDESTRIAN BRIDGE

1,000+

average daily crossings (on school days) in March 2023.

Perfecting the Ideal

Empowering Student Success Through Mentorship and Immersive Research

In scientific research, mentorship plays a pivotal role in shaping the future of aspiring scientists. Professor Geoffrey Zahn, a microbial ecology and conservation researcher, has fostered student success through his immersive mentoring approach. With a strong focus on student empowerment and hands-on experiences, Professor Zahn has cultivated a thriving research environment that has propelled his students toward remarkable achievements.

Unleashing Potential

Professor Zahn's research team, dedicated to the field of microbial ecology and conservation, delves into finding innovative, low-cost solutions to restore endangered plant systems such as seagrass meadows, critically endangered plants, and mangrove forests. Under his guidance, a cohort of 8-10 research students in his lab have the unique opportunity to develop their own projects within the discipline of microbial ecology. From day one, these students are treated as true scientists, allowing them to overcome impostor syndrome and realize their potential.

A Launchpad for Student Careers

One significant aspect of Professor Zahn's mentoring approach is his unwavering commitment to providing students with an immersive research experience. This experience has proven to be instrumental in helping students secure promising STEM jobs and gain admission to prestigious Ph.D., medical, and dental programs across the U.S. Through collaborations with researchers worldwide, Professor Zahn ensures that his students gain valuable exposure and present their work at workshops and conferences, broadening their horizons and networking opportunities.

The Biology S-STEM Program

Beyond individual mentorship, Professor Zahn spearheads the Biology S-STEM Program, a National Science Foundation-funded initiative titled "Faculty-Mentored Experiences for Improving Undergraduate Biology Student Outcomes." This program provides full tuition and research funding for cohorts of students with financial need, particularly those from underrepresented groups in STEM. Students are paired with faculty mentors in their sophomore year and engage in long-term research projects. The program also offers guidance and support, including travel opportunities to conferences for networking and showcasing their work. Moreover, a unique course called "the hidden curriculum" helps students navigate academia, scientific research, time management, networking, and issues related to underrepresented groups in STEM.

Outstanding Results

Since its inception, the Biology S-STEM Program has made a profound impact. With 39 students awarded the scholarship, including 24 first-generation and 29 underrepresented students, the program boasts 95% retention and graduation rate for its participants. Building upon this success, Professor Zahn has submitted a request to the NSF for a further 6 years of funding, aiming to continue empowering future generations of aspiring scientists.

Expanding Horizons

Despite the challenges posed by limited resources and time constraints, Professor Zahn has found innovative ways to extend his mentorship beyond his research lab. Recognizing the importance of early research experiences, he has transformed his mycology course into a Collaborative Undergraduate Research Experience (CURE). This unique approach allows students to conduct in-depth research projects involving fungi throughout the entire semester. By integrating research into the curriculum, students gain a comprehensive understanding of the scientific process while fulfilling requirements for post-baccalaureate programs.

Professor Zahn's commitment to student mentorship and immersive research experiences has transformed the lives of countless aspiring scientists. Through his dedication and guidance, students not only develop strong scientific skills but also gain the confidence to pursue their passions and excel in their chosen fields.

Celebrating Science and Evolution

A Recap of the College of Science's Darwin Day

The College of Science hosted its annual Darwin Day Celebration, one of the largest events of the year. The event brought together students, faculty, and science enthusiasts to honor the influential work of Charles Darwin.

Keynote Speaker and Engaging Presentations

Dr. Joseph L. Graves Jr., a distinguished evolutionary biologist, delivered an inspiring keynote address. His presence added a unique perspective to the celebration, captivating the audience with his insights into Charles Darwin's legacy. Alongside Dr. Graves, renowned scientists and experts in evolutionary biology delivered engaging presentations, highlighting the ongoing relevance of evolutionary theory in modern scientific research.

Interactive Workshops and Exhibits

Attendees participated in interactive workshops and explored exhibits showcasing evolutionary biology's practical applications. From constructing phylogenetic trees to simulations of natural selection, these hands-on activities deepened participants' understanding of evolutionary mechanisms. A collaboration with the BYU Bean Museum further enriched the experience, providing a wealth of resources and expertise.

Student Research Showcases

Darwin Day provided a platform for COS students to showcase research projects in evolutionary biology. Undergraduate and graduate students presented their groundbreaking findings, demonstrating the interdisciplinary nature of their work.

Panel Discussions

Thought-provoking panel discussions brought together experts from diverse scientific backgrounds to explore the implications of evolutionary biology. Attendees actively participated in the conversations, voicing their questions and contributing to the intellectual discourse.

The Darwin Day Celebration exemplified the college's dedication to fostering scientific curiosity and advancing our understanding of the natural world. The celebration is a testament to the college's commitment to nurturing scientific literacy, collaboration, and exploration within its student body and the broader community.

Joseph L. Graves Jr., a renowned American evolutionary biologist and geneticist, holds a professorship in biological science at North Carolina Agricultural and Technical State University. He has authored influential books that debunk race myths and theories and has secured grants from esteemed institutions. Graves has also earned fellowship in the Council of the American Association for the Advancement of Science.

Inspiring Curiosity and Igniting Passion

K-12 Outreach

STEM Fest is an annual event hosted by the Utah STEM Action Center to promote science, technology, engineering, and math (STEM) education and spark children's interest in these fields. This year's event, the eighth STEM Fest in Utah, brought together students from fourth to 10th grade and over 60 exhibitors from STEM companies and industries.

The event took place at the Mountain America Expo Center in Sandy, where students had the opportunity to interact with various exhibitors and engage in hands-on activities. From NASA and Meta to local companies like Dominion Energy and UVU's College of Science, the exhibitors showcased real-world STEM applications.

Tami Goetz, director at the Utah STEM Action Center, highlighted the importance of helping children understand that life is a journey of learning, exploration, and problem-solving. STEM Fest provides a platform for students to experience STEM in a fun and interactive way, encouraging them to play, build, break, and fix.

The event left a positive impact on both students and teachers. A fifth-grade teacher, Naomi Anson, expressed her excitement about her students' interaction with the exhibits, particularly their fascination with a human brain and a moon rock. Grayson Taylor, an event coordinator with NASA, emphasized the significance of events like STEM Fest in igniting and sustaining the younger generation's excitement for space exploration.

In addition to STEM Fest, SheTech, a program aimed at promoting girls' interest and involvement in science and technology, demonstrated the creation of fake snow using a super absorbent polymer. UVU's Department of Earth Science also showcased rocks, minerals, and fossils to foster curiosity about the Earth.

STEM Fest serves as a valuable platform for students to explore STEM fields, encouraging their curiosity, and inspiring them to pursue careers in science and technology. The event highlights the role of the Utah STEM Action Center and the College of Science as pillars in the community, promoting STEM education and engaging with students of all ages.

By Cassidy Wixom

www.ksl.com/article/50484315/stem-fest-sparks-curiosityand-learning-in-utah-students

Science Summer Bridge Program

Latino Scientists of Tomorrow Program Is a Model for the Nation

Utah Valley University's Latino Scientists of Tomorrow Summer Bridge Program (LST) is now a model for the nation.

The program provides outreach to high school students to promote higher education equity and create a source of STEM-oriented students to meet the job market's needs. Dominion Energy recently announced its support of a three-year, $2 million initiative that will allow 1,250 students at seven colleges and universities nationwide to benefit from Summer Bridge Programs in their hometowns.

The program's expansion is a dream come true for Yudi Lewis, who at the time served as UVU's program director and director of the university's Latino Initiative.

"I want to make sure that every student has the opportunity and support to achieve their educational dreams of graduating with a college degree or certificate," Lewis said.

UVU's Latino Scientists of Tomorrow Summer Bridge Program has a track record of success, encouraging high school students to move beyond summer courses and into college classrooms.

"About 85% of the students who complete the LST Summer Bridge Program come to UVU for at least one semester after graduating high school," said Daniel Horns, Dean of UVU's College of Science and co-administrator of the LST program. "About 40% of those students are majoring in a STEM field."

Once at UVU, those students are likely to stay. UVU leads the state with the highest Latino student enrollment as a four-year institution. The graduation headcount has increased 425% in the past 15 years.

The partnership between Dominion Energy and the Hispanic Association of Colleges and Universities (HACU), which will manage the national LST pilot program, was formed due to the success of UVU's initiative. HACU has observed the summer program for the past five years. The program serves 50 students from across the state every year. Since its inception, 134 students from 42 Utah high schools have completed the program.

"All students should have access to a quality education and be provided with the skills to achieve exciting new career opportunities," said Carter Reid, executive vice president and chief of staff for Dominion Energy. "This is a step toward improving equity for Hispanic students and increasing diversity in STEM careers."

Dominion Energy has agreed to provide funding to UVU and the other institutions for three years (2022-2024) with the opportunity to ask for another three years of funding (2025-2027) at the end of 2024.

"ALL STUDENTS SHOULD HAVE ACCESS TO A QUALITY EDUCATION AND BE PROVIDED WITH THE SKILLS TO ACHIEVE EXCITING NEW CAREER OPPORTUNITIES."

"Our new partnership with Dominion Energy is a substantial investment in the success of our Hispanic students in the vital field of energy development and services, an undeniable necessity in ensuring the prosperity of our nation," said Antonio R. Flores, HACU president and CEO. "We are excited to launch this new initiative at seven higher education institutions to foster skilled professionals able to meet the needs of the energy industry."

The seven schools selected to participate in this program are:

George Mason University
Northern Virginia Community College
Sampson Community College
University of Connecticut at Stamford
University of North Carolina at Pembroke
University of Puerto Rico at Mayaguez
Utah Valley University

As the model institution, UVU will assist the other universities in bringing their programs online.

Revolutionizing Astrophysics

Physics Take the Lead With James Webb Telescope Data

Astrophysics is on the brink of a revolutionary era as the highly anticipated James Webb Space Telescope prepares to unveil the secrets of the universe. A team of physics students led by Dr. Joshua Lothringer is at the forefront of this breakthrough, becoming some of the first scientists to analyze the data collected by this state-of-the-art telescope. Their efforts and commitment to unraveling the mysteries of the cosmos have positioned them as trailblazers in the field.

The Trailblazers

One of the key figures spearheading this endeavor is Dr. Joshua Lothringer, renowned for his expertise in astrophysics and his passion for exploration. Dr. Lothringer's proposal was among the first to be accepted by the James Webb Telescope, granting him access to its groundbreaking observations. Under his guidance, a team of students has been analyzing the wealth of data provided by the telescope. Their enthusiasm and dedication are paving the way for the next generation of scientists.

Expanding the Team

Dr. Joseph Jensen, a research advisor in astrophysics, recently had a proposal accepted by the James Webb Telescope. Dr. Jensen, who has mentored Mikaela Cowles for two years, recognized her potential and invited her to join his research team. He also welcomed Sydney Holt and Kassie Jensen, two promising young researchers, further strengthening the group's intellectual firepower. Together, they form a formidable collective, eagerly awaiting the moment to immerse themselves in the wealth of telescope data.

Unveiling the Universe

The James Webb Space Telescope, the most advanced and powerful space observatory ever built, promises to revolutionize our understanding of the universe. It will peer deeper into space and back in time, enabling scientists to observe the formation of the first galaxies, study exoplanets, and analyze the atmospheres of celestial bodies with unprecedented precision.

By being among the first scientists to gain access to this data, Dr. Lothringer and his team of aspiring physicists can uncover awe-inspiring, never-before-seen celestial phenomena. From investigating the birth of stars to exploring the possibility of extraterrestrial life, their research can reshape our understanding of the cosmos and ignite our imaginations.

Future Collaboration and Impact

As our Department of Physics continues to unravel the secrets of the universe using James Webb Telescope data, we foster an environment of intellectual exchange and inspire the next generation of physicists to push the boundaries of knowledge even further.

The College of Science's travel abroad program to Italy's volcanic wonders provides a transformative learning experience, igniting curiosity, and leaving an indelible mark on each participant.

Going Places With the College of Science

Unleashing the Fiery Secrets of Volcanic Marvels in Italy

In the College of Science's travel abroad program, students delve into the awe-inspiring world of volcanoes. Focused on fostering an in-depth understanding of these geological marvels, the program takes participants to Sicily, specifically Mt. Etna and the Aeolian Islands — an enchanting UNESCO World Heritage Site renowned for its natural wonders.

The program combines informative lectures with hands-on field activities, providing an immersive educational experience. Students learn from passionate experts, gaining insights into the processes that shape volcanic activity.

The adventure begins on the slopes of Mt. Etna, Europe's most active volcano. Here, amidst the lava fields and rugged terrain, students study volcanic formations, monitor seismic activity, and analyze the region's unique geological characteristics. This opportunity allows them to witness firsthand the power and mechanisms underlying volcanic eruptions.

Continuing their expedition, the group sets sail for the Aeolian Islands. With their picturesque landscapes and diverse volcanic formations, these islands serve as living laboratories for scientific exploration. Students navigate the archipelago's rugged coastlines, studying the ecological diversity shaped by volcanic activity. They explore unique geological formations such as Stromboli's persistent volcanic activity, Mt. Etna's sulfur-rich fumaroles, and Lipari's pumice cliffs.

The College of Science's travel abroad program to Italy's volcanic wonders provides a transformative learning experience, igniting curiosity, and leaving an indelible mark on each participant. By immersing themselves in the dynamic world of volcanoes, these aspiring scientists develop a profound appreciation for the forces that shape our planet and gain insights that will shape their academic and personal journeys.

Fueling the Future of Scientific Exploration

Recounting the Impactful College of Science Summer Camps

Looking back on an incredible summer, we reflect on the success of the College of Science Summer Camps. From curious young minds to enthusiastic parents, participants of all ages embarked on an unforgettable journey of scientific exploration. Join us in reliving the excitement and inspiration.

Astronomy Camp

The Astronomy Camp proved to be an out-of-this-world experience for participants. Engaging in hands-on activities, they uncovered the mysteries of the solar system, stars, and galaxies. With wide-eyed wonder, they gazed at celestial wonders and discovered the vastness of our universe. The planetarium shows left them mesmerized, sparking a lifelong curiosity about the cosmos.

Astronomy Camp II

An Intergalactic Adventure! The follow-up to the first camp took young adventurers on an intergalactic journey like no other. Delving deeper into the universe, participants unraveled the secrets of distant galaxies, nebulae, supernovas, and quasars. Their excitement knew no bounds as they ventured into the realms of outer space, expanding their understanding of the cosmos.

Little Alchemist

At the Little Alchemist Camp, budding scientists embraced the magic of chemistry. Through hands-on experiments and demonstrations, they witnessed bubbling concoctions, color transformations, and mind-bending chemical reactions. With each discovery, their scientific curiosity soared, fostering a love for experimentation and the wonders of chemical reactions.

Nature and Nanotechnology

The Nature and Nanotechnology Camp showcased the potential of harnessing nature and the field of nanotechnology. Participants engaged in hands-on STEM activities, discovering how to address environmental challenges through scientific solutions. Their understanding of the delicate balance between nature and technology deepened, cultivating a sense of responsibility toward our planet.

Rocket Science

The Rocket Science Camp ignited the imaginations of young aspiring rocket scientists. As they built and launched their own rockets, they delved into the fascinating world of aerospace engineering. Witnessing their creations soar into the sky brought rocket science principles to life, leaving them with a newfound appreciation for the marvels of space exploration.

AS WE LOOK BACK ON THE PAST SUMMER, WE CAN'T HELP BUT CELEBRATE THESE MOMENTS OF DISCOVERY, EXCITEMENT, AND INSPIRATION. THE COLLEGE OF SCIENCE SUMMER CAMPS IGNITED THE IMAGINATIONS OF BUDDING YOUNG SCIENTISTS, INSTILLING A LASTING PASSION FOR INQUIRY AND DISCOVERY THAT WILL UNDOUBTEDLY SHAPE THEIR FUTURES.

Exercise Is the Best Prescription Program

Bridging Theory and Practice for a Healthier UVU

The Exercise Is the Best Prescription Program, managed by Dr. Nicolas Clark and his students in the Department of Exercise Science and Outdoor Recreation within the College of Science, is revolutionizing how theory and practice merge to promote a healthier community. Developed in collaboration with UVU FIT and the People and Culture Division, this student-led initiative offers UVU employees personalized exercise programs based on evidence-based principles, empowering them to lead more active and healthier lives.

Program Overview

Under the guidance of Dr. Clark and his students, the Exercise Is the Best Prescription Program integrates classroom knowledge with real-world application. Conducted during fall and spring semesters, this program provides students with opportunities to apply their expertise while positively impacting the well-being of UVU employees.

Initial Assessment and Diagnostic Report

To kickstart the program, students conduct an online meeting via Microsoft Teams. Following a structured script, they perform assessments and create a diagnostic report to determine eligibility and establish goals for the exercise prescription.

Comprehensive Fitness Assessment

During the second meeting, equipped with specialized lab equipment, students administer various tests to collect participant data. These tests encompass body composition analysis, cardiorespiratory fitness evaluations, functional movement screenings, and musculoskeletal strength and endurance testing. The data obtained informs the creation of a detailed fitness assessment form, pinpointing focus areas for participants' fitness improvement.

Presentation of the Exercise Prescription

In the final meeting, students present exercise prescriptions for each participant. Working in collaboration with Dr. Clark, they ensure that the prescription adheres to evidence-based principles. The exercise prescription comprises three personalized training routines targeting cardiorespiratory fitness, musculoskeletal strength, and endurance, flexibility, and body composition improvement. This step solidifies the practical application of exercise testing and prescription.

The program initially engaged 10 UVU employees, a number that doubled in subsequent iterations. Impressively, a survey conducted on program satisfaction yielded a perfect score of 100%. Looking ahead, Dr. Clark and his students envision expanding the program to reach a wider UVU audience.

The Exercise Is the Best Prescription Program exemplifies the power of integrating classroom knowledge with real-world application. By empowering students and promoting evidence-based exercise practices, this program creates a positive impact on the UVU community, fostering a culture of wellness and lifelong health.

Department of Biology

Grand Gulch Expeditions

The biology department is conducting a multi-year botanical research expedition in the remote Grand Gulch Primitive Area. Despite the challenging terrain, we have conducted multiple expeditions, collecting over 400 plants and 200 virally infected plants. This research has expanded our department's herbarium collection and led to identifying new virus species and plant hosts. We prioritize inclusive methodologies and building relationships with indigenous populations in this culturally significant area.

Diversity of Disciplines

The biology department offers a wide range of courses and programs. An A.S. or B.S. degree in biology provides flexibility through elective courses, while seven additional bachelor's degrees specialize in bioinformatics, biology education, biomedical science, biotechnology, botany, microbiology, and zoology. Minors in biology, horticulture, and zoology ensure options for all students.

Course-Based Undergraduate Research Experiences

The biology department offers 10+ course-based undergraduate research experiences (CUREs), integrating hands-on research within courses. These experiences apply theoretical concepts to real-world problems, fostering scientific understanding, critical thinking, and problem-solving skills. CUREs cover disciplines like botany, microbiology, and genetics, inspiring future scientists and facilitating growth.

Conference Participation

Scientific conferences significantly contribute to students' academic and professional growth, providing opportunities to share research, network with professionals, and access cutting-edge discoveries.

Each year, UVU biology students participate in national and international conferences and present at regional conferences. This year, 10 students attended the international entomology conference, some teaching bioinformatics to graduate students. Ten students participated in the ABRCMS conference, advancing research and professional development.

Department of Chemistry

Introducing the Chemistry Department

UVU's Department of Chemistry is a dynamic hub of scientific inquiry. The department is led by dedicated faculty and offers comprehensive programs to nurture the next generation of chemists. It provides a stimulating environment for students to explore the wonders of chemistry and build strong career foundations.

Academic Programs and Opportunities

The department offers a Bachelor of Science degree in chemistry with a rigorous curriculum covering organic, inorganic, physical, and analytical chemistry. Undergraduates can also participate in research alongside faculty members, gaining valuable hands-on experience.

State-of-the-Art Facilities and Research

Students will find a rich learning environment with state-of-the-art facilities and well-equipped laboratories. From advanced instrumentation for spectroscopy and analysis to computational chemistry resources, students have access to tools that foster exploration and discovery. Faculty members actively engage in diverse research areas, addressing critical challenges in materials chemistry, biochemistry, environmental chemistry, and drug discovery.

Community Engagement and Collaboration

The Department of Chemistry values community engagement and collaboration. Through partnerships with industries, government agencies, and research institutions, students and faculty participate in collaborative projects with real-world applications. The department organizes outreach programs, such as science fairs and workshops, to inspire and educate the wider community. These initiatives enhance learning experiences and contribute to scientific advancement in the region.

Department of Earth Science

Interdisciplinary Nature

The Department of Earth Science offers programs and courses that foster collaboration across scientific disciplines. Students can immerse themselves in curriculum offerings to address pressing environmental issues, climate change, natural resource management, geological hazards, and other challenges. This interdisciplinary focus equips graduates with skill sets applicable in diverse professional settings and future graduate studies.

Faculty Expertise and Research Opportunities

Our diverse faculty possess research backgrounds and expertise in many areas, including geology, hydrology, paleontology, petrology, environmental science and management, climatology, geochemistry, geoscience education, geospatial analysis, and human geography. Students benefit from the wealth of knowledge and mentorship provided by faculty members and have ample opportunities to engage in impactful research projects.

High-Impact Practices

We strongly emphasize high-impact practices that offer transformative learning experiences, such as science excursion courses to Yellowstone, Grand Canyon, and Capitol Reef and study abroad programs in countries like Italy and India. These hands-on experiences expose students to natural environments and allow them to apply their theoretical knowledge in real-world settings, fostering practical skills and enriching their experiences.

Collaboration With Industry Partners

We maintain strong connections with industry partners, including mining companies, environmental consulting firms, and government agencies. Students gain opportunities to pursue internships, engage in research collaborations, and secure job placements upon graduation. By bridging the gap between academia and real-world applications, these collaborations enhance students' learning outcomes and strengthen their professional networks.

Department of Exercise Science and Outdoor Recreation

The Department of Exercise Science and Outdoor Recreation is a thriving hub of knowledge and activity, equipping students with the skills and expertise to excel. With a commitment to hands-on learning and a passion for promoting health and wellness, this department offers a diverse range of programs and opportunities for students to explore and engage in their areas of interest.

Cutting-Edge Programs and Research

At the heart of the department is a collection of cutting-edge programs and research initiatives. Through rigorous coursework and practical experiences, students delve into the intricacies of exercise physiology, biomechanics, sports psychology, outdoor leadership, and more. The curriculum fosters critical thinking, problem-solving, and a deep understanding of the human body's response to physical activity. Under the guidance of experienced faculty, students can conduct groundbreaking research that advances knowledge in the field.

Experiential Learning and Field Opportunities

The department strongly believes in the value of experiential learning and provides numerous field opportunities to complement classroom education. From outdoor expeditions and leadership training to internships with local sports teams, students gain hands-on experience that prepares them for their careers. These real-world experiences not only solidify classroom knowledge but also foster essential teamwork, communication, and problem-solving skills.

Career Paths and Alumni Success

Exercise science and outdoor recreation graduates have gone on to become exercise physiologists, personal trainers, outdoor adventure guides, sports coaches, and wellness program directors, among other career paths. The department's strong alumni network provides ongoing support and mentorship to current students, ensuring a seamless transition from the classroom to the professional world.

By offering innovative programs, conducting groundbreaking research, providing experiential learning opportunities, and fostering a strong alumni network, the Department of Exercise Science and Outdoor Recreation inspires and educates the next generation of leaders.

Department of Mathematics

The Department of Mathematics is a vibrant and dynamic academic unit dedicated to fostering a deep understanding and appreciation for the world of numbers, patterns, and logical reasoning. With a team of esteemed faculty members and a wide range of innovative courses, the department strives to empower students with the skills and knowledge to excel in various fields that require mathematical proficiency.

Academic Excellence and Research Opportunities

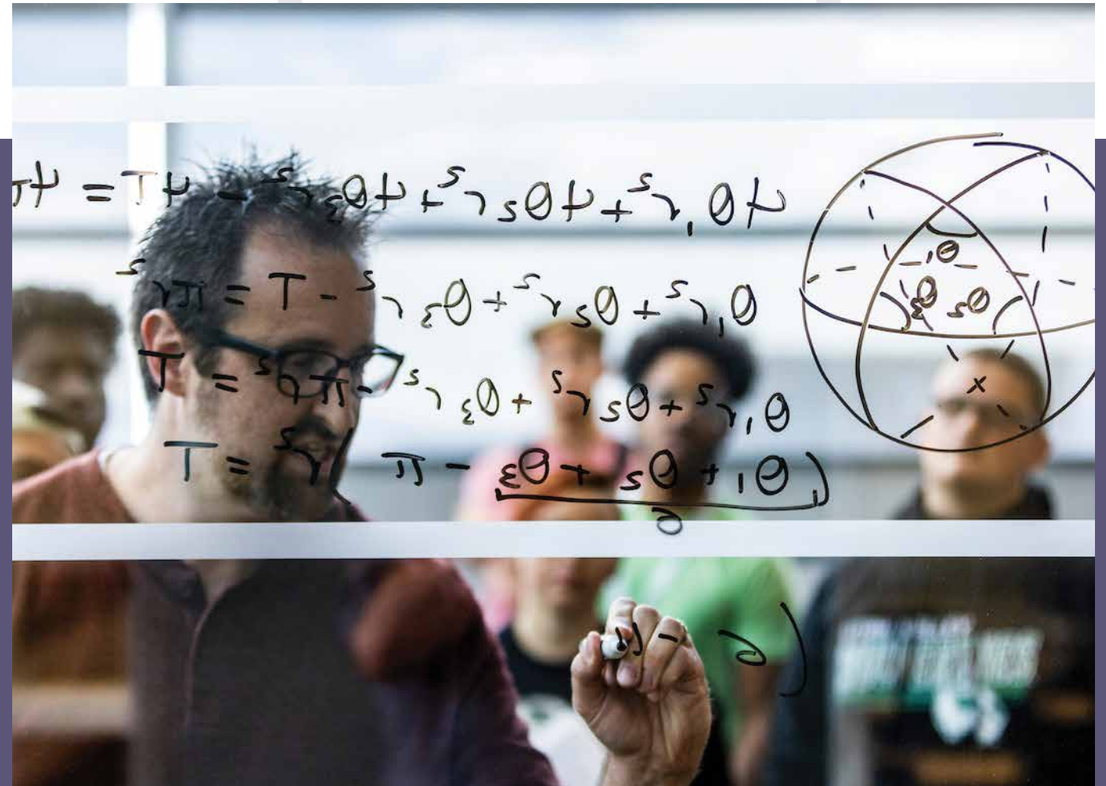
The Department of Mathematics prides itself on offering rigorous academic programs that cater to students of all levels and interests. From foundational courses in calculus and algebra to advanced topics like differential equations and mathematical modeling, students can explore the vast landscape of mathematical concepts and applications. The department is committed to nurturing a research-oriented environment, providing students with hands-on experiences in research projects, encouraging collaboration, and offering opportunities to present their findings at regional and national conferences.

Engaging and Supportive Learning Environment

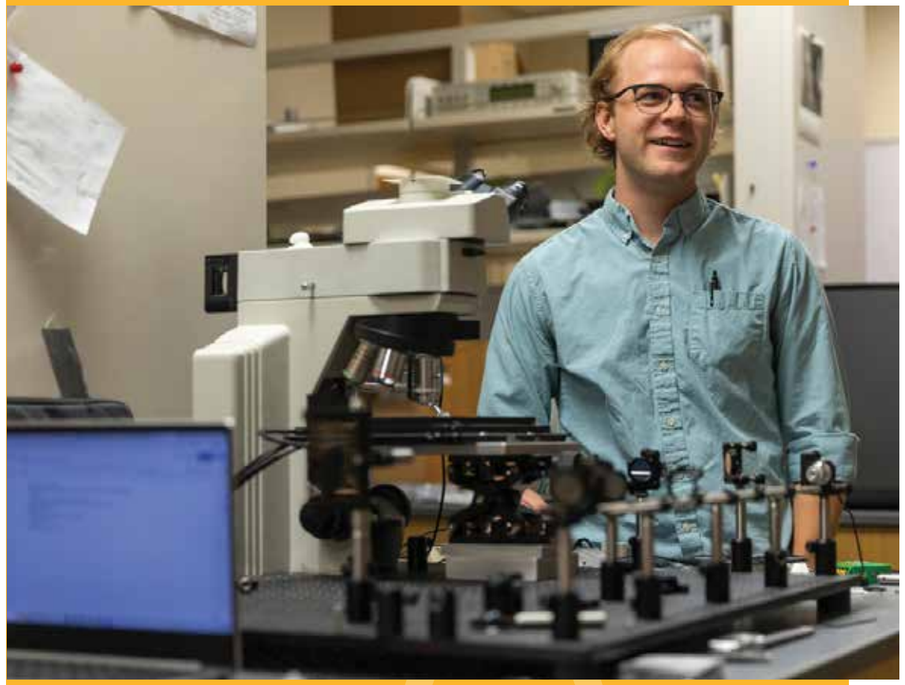
The department recognizes that mathematics can be perceived as a challenging subject for many students, so it places a strong emphasis on creating an engaging and supportive learning environment. The faculty members are dedicated to helping students succeed by offering regular office hours, one-on-one consultations, and mentoring programs. The department also organizes workshops, study groups, and tutoring services to ensure that students receive the necessary support to excel in their mathematical studies.

Industry Connections and Career Prospects

With its strong connections to industries and the local community, the Department of Mathematics strives to bridge the gap between academia and the real-world application of mathematics. The department collaborates with various organizations to provide internships, cooperative education experiences, and networking opportunities for students. These connections, combined with the rigorous curricula, equip students with the skills and practical knowledge sought by employers in fields such as finance, data science, computer programming, and more.



Department of Physics



Unveiling the Secrets of the Universe

Physics, the study of the universe from the smallest particles to the vastness of space, is the foundation for all other sciences. In UVU's Department of Physics, this discipline is explored and applied to address pressing technological and environmental challenges. From nanotechnology to medical advancements and astronomical discoveries, the Department of Physics is at the forefront of scientific exploration and innovation.

Physics and Technology

Under the leadership of physicists Paul Weber and Daniel James, the department collaborates with the College of Engineering and Technology to drive advancements in nanotechnology. Through the UVU nanotechnology program, students gain hands-on experience with equipment such as scanning electron microscopes and 3D laser microscopes. The program's integration of advanced virtual reality training ensures students are well-prepared to operate complex machinery in real-world settings.

Nanotechnology and Medical Breakthroughs

Beyond technology, the department demonstrates its commitment to improving lives through medical research. Faculty members Vern Hart, Dustin Shipp, Cyill Slezak, and York Young lead efforts to enhance medical procedures for cancer detection and treatment. Leveraging laser imaging and infrared spectroscopy, UVU researchers explore ways to identify individual cancer cells, paving the way for more precise and effective medical interventions.

Exploring the Cosmos With the Department of Physics

The department's engagement with the cosmos is equally remarkable. Joshua Lothringer and the astronomy group contribute to groundbreaking discoveries using space telescopes. Lothringer, as part of an international team, recently employed the new James Webb Space Telescope to detect elements like water and carbon dioxide in the atmospheres of exoplanets located hundreds of light years away. Physics students actively participate in astronomical research by accessing and analyzing data from the Hubble and James Webb Space Telescopes. Moreover, in collaboration with the city of Eagle Mountain, UVU is constructing a public observatory featuring a 20-inch professional telescope, expanding opportunities for astronomical exploration.

Honoring Dr. Steven Wasserbaech's Legacy

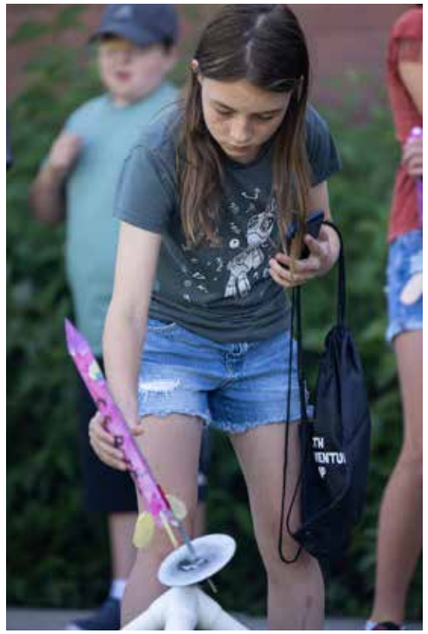
It is with deep sadness that we remember Dr. Steven Wasserbaech, who passed away in November 2022 after a courageous battle with cancer. Dr. Wasserbaech was an exceptional teacher and will be greatly missed by students, staff, faculty, and alumni. In honor of his enduring legacy, the Department of Physics has established a student research award in his name. His loss leaves a void in the UVU community, but his contributions and memory will continue to inspire future generations of physicists.

Department of Mathematical and Quantitative Reasoning

The Department of Mathematical and Quantitative Reasoning is a teaching-focused department. Our diverse group of faculty focuses on excellent teaching, and we emphasize continued growth and professional development of faculty. We research and assess best practices for teaching mathematics to ensure all students have meaningful classroom experiences.

We help our students move beyond our courses so that they can succeed in their academic careers and lives. Based on students' math abilities, we meet students where they are and find a place for them. To help students succeed, we developed co-requisite-style courses that accelerate the completion of quantitative literacy course requirements and provide support outside the classroom.

We work closely with the math lab to ensure tutors are trained and prepared to support students in their classes, and our unique Math Mentor Program directly supports students in the classroom. We also engage with the community through our summer math camp program, which encourages positive attitudes toward math among students in grades 4-7. Research shows that students develop math attitudes during this timeframe, and by positively impacting those attitudes, we hope to help our campers succeed in math through high school and college.



Our peer mentor Math Mentor Program is staffed by students who once struggled with math and/or the transition to the college environment. The math mentors are assigned to specific sections and work closely with faculty to teach students mathematical and metacognition skills. This program has boosted success rates of students in mentored sections, especially for students of color and women.

The Department of Mathematical and Quantitative Reasoning is an innovative, student-centered program that improves mathematical proficiency and quantitative literacy. We enable students to successfully use mathematics in the pursuit of their educational, professional, civic, and personal goals.