INTERDEPENDENCE AND STEWARDSHIP

People need the earth; the earth needs us. Learn how research at BYU is helping us navigate our relationship with the natural world on page 4.

SO WHAT ARE YOU GOING TO DO WITH THAT?

Graduates of the College of Life Sciences can do a lot with their degrees. Check out page 8 to see what ten of our alumnæ have done in their careers.
In the last edition of the Life Sciences magazine, I quoted from President Spencer W. Kimball’s Second Century Address given at Brigham Young University in October of 1975. In this edition, I go back to that address and include a comment he made specifically to the faculty of BYU. “Your double heritage and dual concerns with the secular and the spiritual require you to be bilingual. As LDS scholars you must speak with authority and excellence to your professional colleagues in the language of scholarship and you must also be literate in the language of spiritual things. We must be more bilingual in that sense to fulfill our promise in the second century of BYU.” Being bilingual in the way President Kimball meant is not always easy. This edition of the BYU College of Life Sciences magazine includes an article dealing with our stewardship responsibilities as inhabitants of the planet earth. It is noteworthy that our professors who are exploring ways to respond to a changing climate (their scholarship) are also guided by admonitions in the scriptures to care for the earth (their faith). Through their faith, they know why Heavenly Father created our earth and through their scholarship, they are discovering how to be better stewards. This scenario of faculty exhibiting their bilingual expertise can be repeated over and over in the College of Life Sciences. I am amazed when I think about how this blesses our students. They are being mentored by faculty who can help them understand the intricacies of life in a way that also builds their love of God. To our faculty, I say, “Thank you,” and to our students, I say, “Cherish your time at BYU.”

Dean James Porter
INTERDEPENDENCE
PIECING TOGETHER HUMANITY’S RELATIONSHIP WITH THE EARTH

by Carlee Reber

WILL YOU SHOW UP IN THE GEOLOGIC RECORD IN MILLIONS OF YEARS?

Will we show up in the geologic record in millions of years? The Anthropocene suggests the answer is yes: collective human impact on the environment will leave a definitive mark in future bedrock. We’re a geologic force that influences every natural cycle.

We’re not just impacting rocks and animals, though. Humans rely on the earth as much as we influence it, making for an interdependent relationship. Environmental degradation, then, affects people as much as ecosystems. That places an important stewardship on our shoulders, as much as ecosystems. That places an irreversible mark in future bedrock. We’re a pact on the environment will leave a disciplinary footprint.

As we influence it, so much as we influence it, making for a defunct climate. What will we show up in the geologic record in millions of years? The Anthropocene suggests the answer is yes: collective human impact on the environment will leave a definitive mark in future bedrock. We’re a geologic force that influences every natural cycle.

Climate change is real,” says Dr. Sam St. Clair (PWS). The question is what its local impacts will be. Climate is a complex system, so while global patterns are clear, regional effects vary.

One might think that tropical plants would be unaffected by heat. However, their physiology is adapted to a consistent climate, not thermal extremes, so higher temperatures actually have a disproportionately negative impact on tropical plants. Dr. Richard Gill (BIO) summarizes the paradox: “The tropics, by their sheer stability in terms of historical climate, [are] more vulnerable.”

Gill’s research shows that more carbon dioxide isn’t always helpful for plant growth. While plants initially grow better, subsequent chemical changes eventually backfire; more carbon in dead plant matter slows decomposition, trapping nitrogen such that living plants can’t absorb it. Less nitrogen means less plant growth, so the positive effect of carbon dioxide is temporary.

Far from the tropics, the earth’s largest stock of dead plant matter is in permafrost. The cold prevents microorganisms from decomposing plant matter, which collects over time. After thousands of years, the frozen soil preserves a huge stock of plant matter.

Permafrost underlies a quarter of the earth’s land and contains 1,500 to 1,800 gigatons of carbon: that’s three or four times more carbon than there is in all living things and about twice what’s in the atmosphere. Warmed by climate change, thawing permafrost releases carbon and risks kickstarting a feedback loop of warming and thawing.

With temperatures rising two to six times faster in arctic ecosystems than the rest of the globe, researching permafrost sensitivity is imperative. “We need to know where the limit is,” says Dr. Ben Abbott (PWS), “so we can stay as far away from it as we can.” If we curb human emissions, most permafrost scientists believe that we may still be able to keep about 80% of permafrost carbon in the ground.

Habitat: Aspen & Cheatgrass

“Because everything we have depends on ecosystem function,” says St. Clair, “what we’re doing on the planet . . . comes back and impacts us.” Two examples of vegetation in the western United States demonstrate this principle.

Warming temperatures in Utah are impacting aspen growth. Drought impairs the plants that big animals prefer to eat, so aspen saplings are unusually grazed during dry summers. With more summer droughts predicted, aspen populations face increasing challenges.

Aspen trees matter because they foster life. Aspen forests preserve 20-25% more water than conifer forests. Additionally, aspen facilitates the establishment of other tree species. “Just listen, and you can hear the biodiversity . . . that is created by aspen [forests],” says St. Clair. The thriving diversity of aspen forests benefits both hunters, who want large game, and ranchers, whose livestock enjoy prime forage.

Other trees have less desirable effects. Fire suppression has promoted pinyon and juniper trees at the cost of smaller sagebrush. The larger vegetation fuels larger fires. The simultaneous spread of invasive cheatgrass, which dries up in summer, makes for frequent fires: these grasslands burn every three to five years instead of every twenty to one hundred years.

Since 2005, Dr. Bruce Roundy (PWS) has helped monitor the effectiveness of fire-reducing treatments. Mechanically shredding (definition on page 6) encroaching trees is particularly effective because it reduces fuel for fires, returns nutrients to the soil faster, and preserves soil moisture. In their place, native perennial grasses and shrubs

DEFINITIONS

Anthropocene
A potential geologic epoch wherein human activity has been the dominant influence on climate, natural systems, and the environment.

Greenhouse gas
A gas that traps heat in the atmosphere, contributing to the greenhouse effect that warms the globe.

Climate change
A global or regional change in climate patterns that’s suddenly arisen during the 20th century, largely attributed to the increased levels of atmospheric carbon dioxide released by burning fossil fuels such as coal and oil.

Permafrost
Ground that stays frozen year-round, usually below the earth’s surface. It occurs widely in the Arctic, sub-Arctic, and Antarctic but is also found in alpine highlands.

Fire suppression
Historical policies of putting out naturally occurring fires. Originally thought to be a good practice, this was done in ignorance of fire’s role in a forest’s natural life cycle.
IT'S NO SECRET THAT HUMANKIND IS LEAVING A FOOTPRINT ON THE EARTH.

flourish naturally or are seeded to prevent ceasheath. Especially on a local level, these treatments can seem destructive and expensive, but they productively reduce fires and improve wildlife habitat.

POLLUTION: MARSHES & LICHENS

We receive myriad benefits from the natural world that silently pro-
vide the quality of life that we en-
joy. Clean air, pure water, and fer-
tile soil benefit us invisibly—until they’re contaminated.

Take the everglades for an example. This marshy ecosystem once covered a third of Florida, naturally purifying ocean-bound water. Start-
ing in the 1940s, people drained the marshes for farmland and housing by funneling water more directly to the ocean. Without the marsh fil-
tering system, excess nutrients—es-
pecially nitrogen from fertilizers—
cause huge blooms of toxic algae. The resulting dead zones threaten the ecosystem, local economy, and human health.

Beachside signs warn you to call the health department if you so much as touch the water. “Nobody started out by saying, ‘Let’s destroy this place that we love to live in.‘” Dr. Blaine Griffen (BIO) laments. “They said, ‘You know, I bet that’s good farmland… and we just need to change it a little bit.’” Chang-
ing ecosystems is inherently risky. While ecosystems are often resilient, removing or damaging pieces increases the risk of collapse.

Lichens are like mini-ecosystems. Dr. Steve Leavitt (BIO), who stud-
ies them, describes them as “funky little things… comprised of all kinds of little organisms coming together to create something that would otherwise never exist.” This makes lichens fragile; if one key player is damaged, the whole sys-
tem falls apart. That sensitivity makes lichens a reliable measure of ecosystem health.

Additionally, because lichens ac-
cumulate nutrients by deposition and don’t shed anything, they ac-
cumulate local pollutants. Grind up lichen and you can find concentra-
tions of titanium or lead from hu-
nan pollution.

“The story,” says Leavitt, “is in the long-term evaluation.” For three de-

cades, the Lichen Air Quality Bio-
monitoring Program of the Monte-
L. Bean Life Science Museum has been gathering data-based stories. The program assesses the ecologi-

cal health of public lands (like wil-
derness areas and national parks) by evaluating lichen diversity and pollutant levels in sensitive lichen.

One success story is an old copper smelter superfund site near Anaconda, Montana. After thirty years of consistent progress, the most recent samples show dramatically improved air quality, increased lichen diversity, and lower pollutant levels. And if it’s healthy for lichens, it’s healthy for us too.

DEPENDENT MEDICINE & LIVELIHOOD

Before a successful cancer treat-
ment drug was derived from Pa-
bolic’s leaves, people cared for and
logged the trees and left them to rot. Now, the survival of cancer patients can depend on this once undervalued tree species. Such stories remind us that because we don’t know everything, we can’t say that something is worthless.

We all depend on the natural world, but some feel it immedi-
ately. Indigenous groups who live off the land are directly affected by ecosystem health. Gill’s newest research shows that villagers in Saipipi, Samoa, are being affected by—and responding to—climate change. “We often think that climate change is some-
thing that will happen, that we should be anticipating it,” says Gill, “and we often fail to acknowledge that we’re already in the middle of it.”

Ocean acidification inhibits coral growth, making it unusually vulnera-
tible to stresses. Two consecutive years of coral bleaching events have substan-
tially affected Saipipi. “[There were] huge areas of bleached and crumbling coral . . . where it’s just like chalk,” Gill recalls. “Probably 50% of the reef had been bleached.”

Fish need coral for food and habitat, and villagers rely on fish for over half their dietary protein. Recognizing the impact on their food source, villagers created marine protection areas to reduce the pressure on the reefs.

 “[Saipipi is] culturally very resilient, but environmentally, very vulnerable,” says Gill, who hopes his project will lead to adaptive solutions that incor-
porate both indigenous and scientific knowledge. “Collaboration will allow us to better understand . . . the pathway forward.”

PURPOSE: STEWARDSHIP & CHOICES

In Doctrine & Covenants 59:18–20, the Lord says that the earth is for “the benefit and the use of man” but also charges that we use it “with judgment, not to excess, neither by extortion.” The Creation, then, is a gift from God over which we have been given stewardship.

“I take it seriously that we’re stewards of this planet,” says Griffen. “We need to take care of it.” Our capability to af-
cet the earth’s systems is an im-
portant responsibility to look after it. Scientific research provides reliable knowledge about what choices and actions make us good stewards.

While global changes may feel beyond our influence, they are nonetheless ex-
perienced on a local scale—and we can respond in kind. “Individually, I think what we need to do is add this to the list of things that informs why we make choices,” explains Gill. Just like we’re motivated by family or health, we can prioritize what’s right for the earth’s sustainability. St. Clair is motivated by looking forward. “I have kids, and I’m going to have grandkids,” he says. “What is the future going to look like for my daughter, Grace, or [for] Eli or Daniel? What’s it going to look like for their kids? What legacy have I left by the decisions I made… on this earth?”

If recovering lichen communities, suc-

cessful land management, and collabo-
ration for solutions in Samoa prove any-
thing, it’s that we can choose to do good in the Anthropocene. Our intertwined relationship with the natural world isn’t a downward spiral; rather, it’s a de-
veloping interdependence. To grow in righ-
teous stewardship, we must continually face the existing problems and respond by making responsible choices.
Those who ask you that mean well. But the truth is that graduates of the College of Life Sciences can do a lot with their degrees. Take a look at what ten alumnae had to say about what they’ve done over the years.

Bernice J. Underwood
Microbiology, 1965

“My skills as a medical technologist were a lifesaver while my husband served in Vietnam. It helped pass the time constructively and gave me some much needed adult interaction since I was a lone parent with a baby girl.”

Maren E. Butcher
Exercise science, 1994

“I continued my education and graduated from the University of Utah (I know!) in 1996, earning a degree in physical therapy and have worked part-time in the field since. I worked at Shriners Children’s Hospital, North Austin Medical Center, Desert Cove Skilled Nursing Facility, and have worked for the past eight years as a home health physical therapist. My undergrad education at BYU prepared me very well for physical therapy school and has continued to be a fountain of knowledge from which I still draw in the field today.”

Elizabeth Rawle Binks
Botany, 1999

“My children have been impacted most by my education. I love that my four daughters, as well as my two sons, know that their mom is a science major. My seven-year-old daughter calls me a plant doctor because I answer so many questions about what is ailing my neighbors’ plants. I bring home photos of the large or gross insects I see at work. We talk about what plants need to be healthy. They work in the garden with me. Harvesting potatoes in the fall is our annual treasure hunt. They even experiment with me when we grow fruits like serviceberries. They’ve learned they prefer red currants over black currants. My passion for and education in plant science has enabled me to teach my children to look for wonders in our own yard. I’ve read recently that women graduating with a STEM degree make up less than 10% of women graduates. I want women to know they can choose to study difficult subjects and succeed.”

Jennifer Petersen Brewer
Dietetics, 1999

“My education has opened so many doors. I now work to fight malnutrition internationally, making trips to Guatemala every year. I have used the knowledge to impact entire communities of people who are underserved in developing countries, to help teach them the importance of good nutrition, and to help them be able to build family gardens so they can become self-sufficient in getting better nutrition for themselves and their families.”

Melissa Pehrson
Animal science, 2000

“My training at BYU has served me well. I’ve worked as a certified vet tech since I graduated. I have been in some management, but now I just work part-time since my job as a mother has taken priority. By being a helpful and reliable employee, I have had the opportunity to impact the pets and owners in the Las Vegas community.”

Autumn Orser
Zoology, 2001

“Attending BYU instilled in me a desire for lifelong learning. Most of that continued learning has been self-taught, but in addition to attending medical school and residency, I am also now obtaining an MBA. I have chosen to work at a federally qualified community health center where we serve Medicaid, uninsured, and underinsured patients. I could have chosen to work in a more lucrative private practice, but I entered to learn and have been trying to go forth to serve. I have tried to make my career decisions based on where my specific skills and talents could be of the most good to the most people.”
Sheri Neeley  
Public health, 2001

“For the past nine years, I’ve worked part-time as a fitness instructor, teaching spin, mind-body classes, and cardio workouts. I am certified in group exercise, spin, and barre Pilates. I am a full-time mother to five very active boys. My emphasis was community health, which to me meant I learned to effectively communicate healthy principles to a wide audience. I’ve had hundreds of people take my classes and, as such, have had an opportunity to impact those lives with encouragement to push themselves, set goals, and choose a healthier life. I’ve had multiple opportunities to present health and fitness to groups, and am frequently asked for lifestyle and exercise advice. I also have opportunities to volunteer to hold classes for those who do not have access to a gym or who are new to exercise and nervous about getting started. Being an instructor is very personally fulfilling and I enjoy building relationships with the people in my classes and the community.”

Rachel Williams Bailey  
Biology, 2006

“I promoted ethical implementation of clinical research practices at the University of Virginia, helping bring to market several drugs that will improve patient well being. My foundation in biological science, technical writing, and professional communication gained through my B.S. and M.S. degrees at BYU prepared me for my clinical research career and impactful community involvement, as well as my anticipated career transition to public health.”

Considering a major in the College of Life Sciences? Could you use help in planning for a future career? Here are some on-campus resources:

BYU Career Services  
2590 WSC • 801-422-3000 • byucareerservices@byu.edu  
This is your first and last stop for career success. Feel free to come by with any of your questions.

BYU Women’s Services and Resources  
3326 WSC • 801-422-4807  
Our mission is to facilitate the personal, academic, and spiritual success of women at BYU by empowering them through education and connecting them with resources to help them excel as individuals, build thriving families, and strengthen their communities.

Life Sciences Student Services  
2060 LSB • 801-422-3042  
We assist students with declaring or changing a major, adding a minor, planning schedules, clarifying graduation requirements (including major and GE), applying for graduation, making major modifications, improving academics, and giving general career and pre-professional advisement.

Women in Science Club  
womeninsciencebyu@gmail.com • BYU Women in Science (Facebook)  
The WIS Club provides a way for women interested in science-related fields to collaborate, network, and find solutions to challenges facing women in science professions while enjoying a supportive community of like-minded women, as well as resources including scholarship opportunities available to club members.

Khealynn Harris  
Physiology and developmental biology, 2008

“All my knowledge of anatomy, biology, chemistry, physiology, and anatomy labs that I gained at BYU has helped me understand the human body and enhanced my learning in dental school. Since being a dentist, I have started a non-profit organization that travels to Ecuador annually to provide dental treatment to people who have little.”

Chelsea Slade  
Biology, 2010

“I’m a female LDS physician and am loving life! I finished my training this summer and became an attending physician at the hospital at the age of twenty-eight. I am also the Chief Administrative Officer of a free medical clinic in our community; I have been really blessed to train under some amazing mentors who are now my colleagues. I also have an incredibly supportive husband who believed in me along the way and took on the role of parent-in-chief during my training. We had three beautiful kids during my medical training—our first was born during my fourth year of medical school, and I had two kids during residency. For all the women considering a career as a physician, I just want to say that you can do anything you set your mind to with God’s help.”
Ensuring a Thriving Future: BYU alumna Dr. Fernanda Werneck recognized with international award
by Rebecca Cazanave

A s one of fifteen recipients in the world, Dr. Fernanda Werneck was chosen for a prestigious International Rising Tal- ent Grant from the L’Oréal UNESCO For Women in Science program. Werneck, an alumna from the Department of Biology, was one of just three women to receive an award in the “Examining the past to shed light on the future – or vice versa” category, and she earned it for her work in “predicting how animal diversity will evolve.” Receiving the award was a great honor for Werneck, and she explains that by better understanding these regions with their diverse species and learning more about how climate change will impact the distribution of these species, she hopes to “preserve the world’s biodiversity for future generations.”

Werneck’s work will “preserve the world’s biodiversity for future generations.”

Through her work ethic, Werneck made the most of her time at BYU, utilizing the resources provided by the university. She explains, “It was only at BYU that I got in touch with important theory and practice to lay the groundwork for my studies.” Since graduating, Werneck has accepted a research position at INPA, been successful at getting funding to support her own students, developed her own research program, received the For Women in Science regional award for Brazil, and was invited to apply for the International Rising Talent award, which she received in March 2017. Her distinguished work and research has not only succeeded in gaining her entry to the fourth year of her doctoral degree, she and her husband both came to BYU for doctorate work. Werneck studied integrative biology, hoping to devote her career to identifying and conserving biodi- versity in Brazil. Her Ph.D. advisor, Dr. Jack Sites (BO), remarks that Werneck “always keep in touch and have plans to continue [their] very productive collaboration.”

Nutritional science majors are primarily interested in the chemical composition of food and how the body processes it. They work to understand the scientific foundation behind nutrition as they learn about digestion, absorption, and other metabolic processes. Additionally, they study the negative effects of nutrient deficiencies and imbalances. The program seeks to ensure that students understand the relationship dietary choices have with health and disease and that students are able to perform nutritional assessments as well as evaluate and conduct research within the field. The major emphasizes student laboratory research and community volunteer work, which makes graduates more competitive for employment and higher education.

Students within the major have access to the Nutrition Assessment Lab as well as the Chromotography Facility which provides unique opportunities for under-graduate research. Students in the nutritional science major have a wide range of career options. Some go on to work for food security or health advoca- cy groups, while others decide to pursue graduate degrees in fields such as med- icine, dentistry, optometry, pharmacolo- gy, and physical therapy.

For the Love of Food

The didactic program in dietetics is a limited enrollment program that admits eighty students per year. The goal of the program is to learn the foundational skills and knowledge established by the Academy of Nutrition and Dietetics. Once students complete the program, they qualify for a verification statement which enables them to progress to a di- etetic internship. Although the national internship placement rate usually hovers around 50%, BYU’s overall dietetic internship placement rate from 2010 to 2017 was 74%. Once a dietetic intern- ship is completed (usually a nine- to twelve-month commitment), graduates are eligible to take the exam required to become a registered dietitian.

Students in the program have the opportu- nity to work on campus in the Pen- culum Court Café to gain unique work experience. Additionally, many students volunteer through Y-Serve for Anatomy Academy or Dietetics After School Pro- gram to help share their love of nutrition with the community. As registered di- etitians, graduates of the program have many career options. Some may choose the clinical route where they plan meals for residents of hospitals or nursing care facilities. Others opt to do private con- sulting or to work in their communities, advocating for improved health.
Gordon Lindsay: HLTH
Dr. Gordon Lindsay was a teacher at heart. He left his first job teaching health to pursue a Ph.D. in health education and preventative medicine. After brief public health employment in Utah and Delaware, he served in BYU's Department of Health Science for twenty-three years. Lindsay taught with stories, humor, and kindness, he was personable and genuine with everyone around him. Lindsay's last lecture was on the powerful impact of public health. “[We need] public health people,” he said, “who know how to reduce the conditions that cause disease.” Public health advancements like sewage treatment, sanitation, and immunization have increased life expectancy on a large scale. Lindsay himself researched alcohol and tobacco abuse, policy, and industries. “I’m gonna miss it big time,” says Lindsay about his career, “but I am so looking forward to the next chapter in my life.” He’s returned to southern Germany, where he served his mission, to serve in the Freiberg Germany Temple with his wife, Kathleen. As family oriented as ever, he says, “When we come back, I’m going to canoe for the rest of my life with my grandkids.”

Bill Myrer: EXSC
“True education, an education that prepares us for eternity, is a noble pursuit and of immeasurable worth,” says Dr. Joseph “Bill” Myrer. He earned a B.S. in physical education from the University of Calgary, an M.S. in human kinetics from the University of Windsor, and a Ph.D. in corrective physical education and rehabilitation from BYU. However, Myrer explains that “our self-worth should not be gauged on how many degrees we have obtained.”

Myrer worked as a professor at the University of New Brunswick from 1983 until 1990 before teaching at BYU. During his career, he expanded the Exercise Sciences anatomy program, received numerous research grants, published dozens of articles, and presented at nearly one hundred professional meetings. Despite his own impressive career, Myrer is proudest of his students and what they have accomplished. Myrer and his wife have already enjoyed an international cruise since his retirement and are working on their mission papers. Myrer plans to use his extra time to exercise, garden, fish, visit his five children, and study the Gospel.

John Beard: HLTH
Dr. John Beard started as a BYU statistics major who yearned to make a difference. “I wanted to use it [my] learning on a real problem affecting real people,” he said. When he read that epidemiology uses statistics to determine what causes diseases, everything clicked.

Beard earned his MPH at BYU, researching environmental health. His internship with the National Institute of Environmental Health Sciences segued into his Ph.D. research at nearby University of North Carolina at Chapel Hill. An applied epidemiology fellowship with the Epidemiology Program Service brought him to the Centers for Disease Control and Prevention, where he enjoyed the variety of projects. Now, Beard brings his experience back to BYU. He’s starting two meaningful research projects: a study of environmental risk factors for adult neurological disorders (specifically Lou Gehrig’s disease) and a study on the health effects of infusions.

Family is Beard’s first priority. He’s grateful to teach at BYU so he can do what he loves and still enjoy family time.

Paul Frandsen: PWS
Dr. Paul Frandsen came to BYU as a pre-dental student but soon became involved in undergraduate research on insects. His experiences doing lab work with professors inspired him to change direction. After his B.S. in integrative biology, Frandsen earned a Ph.D. in entomology from Rutgers University in entomology instead of attending dental school. Frandsen is happy to be back at BYU where he can work with students to “combine science and religion in an all-encompassing pursuit of truth.”

Braine Griffen: BIO
When Dr. Braine Griffen was a kid, he would get in trouble for running these halls. Now, like his father, he’s a BYU professor. “If you had asked me at the age of four what I wanted to do with my life, I would’ve said, ‘I’m going to be a marine biologist,’” says Griffen. He pursued his dream—after studying zoology here at BYU, he received an M.S. in marine resource management and a Ph.D. in marine ecology. He subsequently taught at the University of South Carolina for nine years before being hired by BYU.

Griffen loves sharing his passion. “I try to get my students excited about the world,” he says. “They have to understand why it matters to them.” Griffen knows the power of fascination: interesting research questions motivate him to use mathematical modeling. He studies how human-caused environmental changes influence the natural populations of species such as crabs, polar bears, and elephant seals.

He and his wife, Monica, have five children, and they enjoy taking trips as a family. Griffen admits, “I watch far too much football,” but makes up for it by multitasking: “The ironing gets done during football season!”

David Jarvis: PWS
When asked for just one thing that he wants students to know, Dr. David Jarvis explains, “There’s lots of good out there and it’s fun to discover.” With a Ph.D. from the University of Arizona in plant sciences, Jarvis knows all about discovering the wonder in the world. He first realized his love of plants while growing up in a small farming community in Arizona. Once at BYU, he started doing research with faculty and exploring plant sciences. Jarvis graduated from BYU with a B.S. in biotechnology and an M.S. in genetics and biotechnology.

Much of Jarvis’s doctoral research centered on salinity tolerance as he worked to identify genes that help plants grow better in saline soils. After completing his Ph.D., Jarvis moved to Saudi Arabia with his wife and three children to do research at King Abdullah University of Science and Technology. While there, Jarvis was able to return to the quinoa research he began at BYU, and he helped develop the first high-quality genome sequence of the crop.

Jarvis is happy to be back at BYU where he can work with students “to combine science and religion in an all-encompassing pursuit of truth.”

Brad Taylor: NDFS
“Before my mission, food was just fuel,” says Dr. Brad Taylor. He served in the Poland Warsaw Mission, where he learned food’s cultural significance firsthand. “Looking back,” he says, “I can see how the people that I met and the meals we shared meant so much more.” Shortly after returning, Taylor decided to major in food science at BYU, graduating cum laude. He went on to earn a Ph.D. in nutrition and food science from Utah State University.

Since completing his education, Taylor has had a diverse global career working in microbiology and research and development management for the National Food Processors Association in Washington, DC, Mead Johnson Nutrition R&D in Mexico City, and most recently, WhiteWave Foods Company in the Denver metro area. His work has ranged from research affecting the quality of milk to developing shelf-stable foods to developing nutrition products for premature infants.

Taylor, his wife, and their four children enjoy visiting historical sites, exploring the great outdoors, and being involved in all things food. Taylor looks forward to sharing his expertise with students interested in global research and development career opportunities.
When he was a freshman, Jeffrey Zhao knew he wanted to do more than just classwork. He had a big idea: to develop a therapy using a bacteriophage (a type of virus) to inhibit obesity, thus preventing chronic diseases like cancer.

Starting in Dr. Laura Bridgewater’s lab with absolutely no research funding, Zhao somehow persevered. “The only thing that kept me going in the lab,” he recalls, “was my firm faith and belief in my research, that it has the potential to help millions of people acquire a better state of health.”

Now a junior, Zhao has funding at last. Thanks to a generous donor’s scholarship, he is pursuing his research goal with no worries about money. “I would like to express my deep and sincere gratitude for this scholarship,” he says. “Without it, undergraduates like me would never be able to work on their own research in a laboratory.”

Zhao is pleased with his progress: “This research will serve as a theoretical basis in proving that it is possible to prevent and treat chronic illness using phage therapy.”

To help fund another inspiring learning experience in the College of Life Sciences, donate online at https://lifesciences.byu.edu/giving.

If you’re considering a gift to the college, contact Jim Welsh at 801-356-5300 or jim.welsh@byu.edu.