Beering Scholar Student Association
Boilermakers,

Spring is an awakening of sorts. As the weather warms and the sun peeks out from cloud-covered skies, campus emerges from its hibernation. Students trade their frantic walk for a carefree stroll, their down jackets for t-shirts. Or at least this is usually the case. This semester we’ve seen bright sun in February, snow in April, and a tornado or two in between. As tumultuous as conditions at Purdue have been, the Beering Scholars have stayed their consistent course. As usual, they’ve been doing really cool things.

The Beering Scholar Student Association has been forming new connections and strengthening old ones. We were out in the Lafayette community, cleaning houses, moving dirt, and wielding power tools with Habitat for Humanity. We showed off our athletic ability at a trampoline park for a BSSA social, spending the night bouncing and laughing with our fellow Beerings. The BSSA brought back Chris Bosma, a Beering graduate and current medical school student, to speak about his experiences and give perspective to the current pre-med scholars. We also hosted New Scholar Day for the prospective Beering Scholars, giving personalized looks into life at Purdue while forming bonds with those who will be joining our community in just a few months’ time.

The BSSA, at its core, is a community of scholars, and this was a semester filled with impressive feats by those individuals of which it’s composed. Three scholars take another step in their journey of continued education, as we welcome a Fulbright, Marshall, and Truman scholar to Beering family. In this newsletter, junior Paige Rudin and senior Mark Gee will take you along on some of their adventures as they study abroad in Europe and beyond. Sophomore Brian Helfrecht will spark your curiosity with his work on unmanned aerial systems, freshman Kat Li will show how she gives back through Science Olympiad, and sophomore Andrew Santos will detail how his new organization is changing the way society perceives science. We also say goodbye to eight graduating Beering Scholars as they look forward to their future and reflect on their time here at Purdue.

For every story, every success and dream fearlessly pursued, we as Beering Scholars give thanks to those that have helped us along the way. There are no words to express how grateful we are for the scholarship donors, advisors, alumni, faculty mentors, and friends of the Beering community who, each and every day, serve as reminders that there are people rooting for us. Your support is irreplaceable.

Boiler Up!
Paul Dawley
Class of 2020
CONTENTS

4  GRADUATING SCHOLARS
7  STUDY ABROAD
10 ACTIVITY SPOTLIGHTS
12 LIFE ON MARS
14 NEW SCHOLAR DAY
15 COMMUNITY SERVICE & SOCIAL EVENTS
Ana Carneiro

Degree: B.S. Chemical Engineering
Hometown: West Lafayette, IN
Next Steps: Attending UC Berkeley for a PhD in Chemical and Biomolecular Engineering

Entering Purdue as a freshman, I had no idea how much the Beering Scholarship would impact my life in college. While the financial benefits of the scholarship are wonderful, what I am most thankful for are the other Beering Scholars I have had the chance to meet. Seeing their desire to make this world a better place, each in their own way, and listening to their stories opened my eyes to new ideas and possibilities. Because of this scholarship, I was able to step outside of my comfort zone and live in London for a semester, something I had never considered doing before. I've had the opportunity to work with people in New Orleans and Haiti through mission trips and lead a student organization.

With the numerous resources through the Purdue Chemical Engineering department and the support from the Beering Scholarship, I discovered my passion for biological research, focusing in drug discovery and delivery. After graduation, I will be attending UC Berkeley for a PhD in Chemical and Biomolecular Engineering. Purdue has prepared me well for this journey, and I owe much thanks to the Beering Scholarship for making this possible.

Katie Ceglio

Degree: B.S. Mathematics
Hometown: Indianapolis, IN
Next Steps: A year teaching English in Taiwan with Fulbright, then IU med school

I'm pretty sure just yesterday I wrote my Meet the Freshmen introduction for the BSSA newsletter, and somehow now, I'm writing my Graduating Seniors conclusion. I pulled up that old newsletter, and after chuckling about how young we all looked, I sat back and marveled at how far we've come in just 4 years. I could measure my time at Purdue in how many countries I've visited (14!) or in how many times people have said “that's interesting...” to my math major/pre-med combo (a lot.) or in how many times I've gotten ice cream at Silver Dipper (you have to try all the flavors, you know??). But despite my affinity for numbers, there is no measuring the value of my college years. Between opportunities that I have sought out and those that have landed right in front of me, I have been able to find myself and my passions. Honors classes introduced me to new interests like mental health; Spanish has taken me from exploring the ends of the world to tutoring kids at local schools; I had research and Zumba and board games to fill my time. Most importantly, the people I have grown to love will forever make college a highlight of my life. I am so grateful to the Beering Scholarship for bringing me to a place where I could thrive, push myself, and leave feeling so ready to take on the world.

Favorite Purdue Memory // Words of Wisdom: Annual Christmas show viewing + Greyhouse hanging + caroling // Make time for the people that you care about. That's how you make lifelong college memories.
Marlow Rumreich

Degree: Master’s in Electrical and Computer Engineering
Hometown: Indianapolis, IN
Next Steps: Working as a Radar Engineer for Boeing in Seattle, WA

After five years and two degrees, it’s bittersweet to be leaving Purdue. I’ve made lifelong friends in the other Beering scholars, I’ve had the chance to learn from them and pass on my own knowledge, and I’ve grown as both a scholar and a person. I’m so proud to see the amazing organization we have built during my time here, and the wonderful impact we have made on the community through service projects, campus outreach, and mentorship.

However, I am eager to broaden my impact beyond West Lafayette, IN. I hope to begin enacting change as a Radar Engineer at Boeing, researching and designing cutting-edge stealth systems for military aircraft. The technical knowledge, morals, and leadership skills I developed throughout my time at Purdue will be invaluable to me as I start my career. I wouldn’t be the person I am today without the Beering Scholarship, and I am immensely grateful for the opportunities it has provided me.

Although I am sad to be saying goodbye to Purdue and the Beering Scholars Association, I am confident that the next generations of Beering Scholars will continue to improve Purdue and the greater community in ways beyond what I could even imagine.

Boiler up!
Marlow Rumreich

Words of Wisdom: “It’s not what you look at that matters, it’s what you see” Henry David Thoreau
Abby Lemert

Degree: B.S. Global Security Engineering  
Hometown: Fort Wayne, IN  
Next Steps: Pursuing two years of postgraduate study in the U.K. on a Marshall Scholarship. I’ll spend my first year pursuing an MSc. in Informatics from the University of Edinburgh and my second year at King’s College London pursuing an M.A. in Intelligence & International Security.

In August 2014, nine new Beerings wrote thank-you letters to the donors who had funded our dreams. Mine said: “This scholarship has allowed me to plan my life around what I love instead of what pays the most. You changed everything for me.” This, I still believe, is the purpose of the Beering Scholarship. Freeing us from financial constraints so that we may dedicate ourselves fully to the service of others and the betterment of the world.

My advice to you, little Beerings, is to avoid the trap of believing this mission starts after college. To quote Dr. Beering himself, “If you can dream it, you can do it. But you must begin.” Think of the Beering Scholarship as an amazing safety net—there to protect you if you get knocked down and need a degree or two to catch your breath. But it’s utterly wasted if you aren’t out there taking flying leaps.

Take risks here at Purdue, because you have nothing to fear. Aim for those crazy-competitive internships. Live in a faraway country. Choose people over homework. Take the bullhorn at a rally. Wait around after keynotes and introduce yourself to the speaker. And behind and beneath all of it, live for others, in bold pursuit of your calling—“the place where your deep gladness and the world’s deep hunger meet.”

In the Beering Scholars I see a collection of people whose brilliant minds and caring hearts will change the world. My hope for all of you is that you will not spend your time building your resumes for the future. Instead, live fearlessly out of gratitude for the things you have already been given. If you do, I think you’ll find that when your time as a Boilermaker comes to an end, your future will overflow with incredible opportunities to take risks, serve others, and better the world. And I am so excited to watch you all do it.

Eric Klipsch

Degree: B.S. Biochemistry, B.A. Spanish  
Hometown: Evansville, IN  
Next Steps: Attending IU School of Medicine

Hello! My name is Eric Klipsch from Evansville, Indiana, and this May I will be receiving my BS in Biochemistry and BA in Spanish. In the upcoming fall, I will be attending the Indiana University School of Medicine. It seems unreal to think that my time as an undergraduate student at Purdue will shortly be coming to an end. The last four years have passed in the blink of an eye, and I am incredibly happy to have spent them at Purdue University. I have made lifelong friends, have gone on multiple study abroad programs, have learned an amazing amount, and have discovered new things about myself along the way. If I could impart a couple words of wisdom on any incoming freshmen or undergraduates with time left at this wonderful university, I would say, “Find something that you are passionate about. Don’t try to be apart of every club or every event, but rather think about what really matters to you and go for it! Purdue has a plethora of organizations and events, and I believe that there is a spot for everyone among the many groups on campus. Be sure to stay involved, but always make sure that you love what you’re involved in!” Thank you, Purdue, for all that you have given me. Ever grateful, ever true. Go Boilermakers!
This semester, our foreign correspondents are Mark Gee (B.S. Biological Engineering, Agronomy, Biochemistry, May 2019) in the Netherlands and Paige Rudin (B.S. Multidisciplinary Engineering, May 2019) in Spain. They report back with tales of adventure—and misadventure!

“Really? They use that for cat food? That’s so unappetizing.” – Me, right before I ate a slice of fruit from Sevilla’s famous bitter orange trees.

Sevilla is white with burnt orange, sienna, and deep blue. Its streets are narrow, cobblestoned, and cool as the buildings lining their sides block most of the sun from reaching the sidewalk. At tight corners and small courtyards, the sun glances blindingly off the pavers, and most Sevillans sported stylish circular sunglasses. Wider streets are lined with bitter orange trees filled with fruit; unable to resist temptation, my group picked one, peeled it, and tried it. It was very acidic but not bad; we saw street vendors selling them dried and covered with chocolate later in the day, even though they are not usually used as a food source except for some pet food products.

“Oh my gosh, look how close they are to the edge. I would never do that.” – Me, right before I walked that close to the edge.

The Cliffs of Moher were stunning, wind-blown, damp, and eerily beautiful. The overcast sky added to the moody mystique of the sheer faces of stone so high, it was impossible to hear the large waves of the ocean crashing far below. There are two parallel worn dirt paths along the cliffs: one places a rough stone barrier between tourists and the edge, and the other treats the fence as a suggestion and allows brave visitors to peek over the border between grass and nothingness. A small number of people fall from the Cliffs of Moher each year, and that knowledge adds to the sobering power of the rocks.
“Tourists.” – Me, right before I stopped to take this picture in the historic center of Madrid, the city in which I am currently studying.

Here in Madrid, buildings are beautiful, courtyards are plentiful, and restaurants are open air. My apartment room has a balcony, which is common, and residents can often be seen sitting outside enjoying the fresh air. I fall asleep each night to the faint clatter of plates and babble of voices on the street. Simple tasks like grocery shopping and supply acquisition are so much fun when everything is new, and time is plentiful. Churros con chocolate (a semi-sweet, thick liquid chocolate comparable to brownie batter) is a breakfast and late-night staple.

“I am so inflexible. There’s no way.” – Me, right before I limbo-ed under that pole in the air on the right.

Carnival is an annual Spanish festival similar to Mardi Gras held throughout the country in mid-February. Cádiz, a coastal city in the southern Spain, and the Canary Islands off its eastern coast are known for the best celebrations. The beachside town was filled with people of all ages, shapes, and types dressed in elaborate costumes. I walked past U.S. fighter pilots a la Top Gun, a variety of Super Mario Brothers, firemen, princesses, and a veritable zoo of animals. The life of the city pulsed through the streets as its inhabitants walked and danced and ate and talked while listening to music, smiling, and laughing.

“It doesn’t snow in Italy in March. I’ll be fine without my winter coat.” – Me, right before it snowed in Italy in March, and I was wishing I had my winter coat.

Two friends and I hiked 10 miles through the mountains ringing the shores of Lake Como from the village of Varenna north to Bellano. Bellagio, visible across the lake, is a summer home to many of the world’s rich and famous. I could almost make out George Clooney standing on the balcony of his Italian villa. Where the trail opened up, the panoramic views were stunning; overcast skies made the distant Swiss Alps hazy, and snow occasionally swirled into the clear water of the lake. Our toes were frozen from trudging through snow when we reached the end of the hike, so we found a bakery recommended to us by a local and tucked into slices of cake with a caramel-and-nut filling and espresso to warm up.
I didn’t know what I was getting into. At study abroad orientation, the organizers asked for volunteers out of the 300 person crowd, one from Latin America, North America, Asia, and the Netherlands. We made our way to the front of the auditorium and the words “Stereotypical Dance Off” flashed onto the screen. Then the beat hit and something took hold of me. I threw off my coat, dabbed, dipped, and dropped it like it was hot. At first the crowd didn’t know what to do, then they laughed, and started dancing along. Team USA was declared the winner by overwhelming crowd cheers.

Bikes are everywhere in the Netherlands. In the city of Amsterdam, it is estimated that there are more bikes than people and that 5% of the bikes are stolen annually. Traffic jams of bicyclists waiting to cross the street occur daily at the main intersections. I got a bike as soon as I arrived, but I don’t have the Dutch touch when it comes to choosing the best ones because within the first week the headlamp, front brakes, and chain broke. Fortunately, my new friends at the university repair shop patched the bike back together and I am back on the road.

The Dutch play some crazy sports. The one pictured is called knotsbal, and involves using the big, foam batons to hit a small, rubber ball into your opponent’s goal. There are almost no rules and anything goes. Collisions are frequent and devastating.

Lambs are hard to beat when it comes to cute. The photo is of Xavier, a French farmer who lives near the ancient Carcassonne castle, making sure his lambs have enough to eat. Xavier has about 600 ewes and raises as many lambs each year along with the oats, barley, and pasture to feed them all. He spent an afternoon with my brother and I sharing the details of his operation, how he markets directly to French consumers, and showed off the skills of his sheepdog. He also treated us to a special French meal of, you guessed it, lamb stew.
I used to hate physics almost as much as I love it now. That sort of dramatic transition cannot take place overnight, and it didn’t. It happened in about five minutes. The ultimate catalyst in my physics career appeared on a haphazard “you should watch this” – a video about quantum physics. For me, I got that lucky window into this field, but if you were to ask anyone else how they perceived physics, they would almost always say they hated it...

And some close peers and I are determined to change that mindset.

The Purdue Impact Theory (PIT) aims to challenge how the world sees not only physics but all sciences. It is no coincidence that the idea for this student organization sprang to life while sitting in a gaga ball pit at last year’s Beering retreat! From a mere whim to what it is now, I cannot imagine a better group of individuals to have along for the ride.

I’m proud of PIT for having accomplished some amazing things in its first semester. We worked with the Physics Department, getting involved with their online public engagement as well as with their curriculum construction. In tandem with our website, we joined online platforms like Facebook, Twitter, Medium, and others to share videos, articles – you name it. We are forming new relationships with Purdue’s student newspaper, The Exponent, and other science clubs on campus. We even began reaching out to local high school educators. With them, we hope to start a dialogue concerning what steps could be taken to improve science perception as an invested collective of science ambassadors. All these projects advance while individual members lead their own long-term projects, often inspired by their personal scientific backgrounds.

This organization would be nothing without the faculty, students, and close friends and family rooting for us on campus and at home. I cannot wait to see what transpires over the next couple years as we tackle short-term and long-term undertakings. Above all, the community we have created in PIT has been the most special aspect of this process for me. We are ready to welcome in a new era of communicating our passions for science, and I am touched by the enthusiasm of our members and the community surrounding us.

The widespread “math-phobia” in modern society has always disheartened me. Mathematics is my greatest passion, and it makes me so sad that many people see math as an impossibly difficult discipline that consists of nothing more than executing computational procedures. Thus, when Andrew approached me about PIT, I instantly knew that it would be the vehicle through which I could change public reception and perception of math. Through PIT, I hope to maintain a blog or website about proof-writing (an essential component of upper-level mathematics that many people are not aware of) and also share awesome and exciting facts about math!
Charting His Own Flight Path  
By Brian Helfrecht, B.S. Electrical Engineering, May 2020

About a year ago, I joined a club that combines my passions for robotics and the aerospace industry: Purdue’s IEEE Aerial Robotics team. In this organization, we build an unmanned aerial system (UAS) to compete in an international competition. The final system is required to autonomously take off, navigate to various waypoints, identify and track ground-based targets, land safely, and more.

To accomplish these tasks, the organization is split into three sub-teams: Aeromechanical, which builds the plane’s fuselage, Software, which implements image processing algorithms to track objects, and Electrical, which designs the plane’s circuit board and its navigation algorithms. As a member of the Electrical sub-team, I have designed the plane’s automatic takeoff and landing algorithms and have developed a simulation to test our navigation and control systems. Currently, I am transitioning into the role of the Electrical team lead, and I am assisting with the design of an improved flight control system for next semester.

My involvement in Aerial Robotics has given me invaluable experience that will serve as the foundation of my future career. In fact, this summer I will be working on UAS navigation and control algorithms at Rockwell Collins. I can’t wait to put what I’ve learned in Aerial Robotics to use in the real world!

An Olympic Volunteer Effort  
By Katherine Li, B.S. Chemical Engineering, May 2021

This past year, I’ve had the pleasure of being involved with the Science Olympiad club. For those who aren’t familiar, Science Olympiad (Scioly) is a STEM competition for middle and high school students. Competitors participate in a variety of events that range from building a hovercraft to performing forensic analyses of a simulated crime scene. I competed on the Scioly team for five years throughout middle and high school, so I was incredibly excited to discover that Purdue’s Science Olympiad club hosts a regional competition every year.

I worked with another event coordinator to write the test for and run Microbe Mission, a microbiology event. In this event, competitors work in teams of two to complete a test about microbes and how they cause disease. The day of the competition was a whirlwind; we had to proctor and grade over twenty five tests we had written beforehand in time for the awards ceremony at the end of the day. Fortunately, with the help of a few dedicated volunteers (shoutout to fellow Beering scholar Garrett for volunteering!), we managed to get everything finished in time.

All in all, participating in Scioly was a rewarding experience. It was inspiring to see the depth of knowledge displayed all around, and I was really excited to give back to a program that had such an impact on me. In the future, we hope to continue expanding our competitions and reach out to more teams throughout Indiana, so we can positively impact even more students.
The Mark-tian: Life on Simulated Mars

By Mark Gee, B.S. Biological Engineering, Agronomy, Biochemistry, May 2019

Why are we here? What is our purpose? What if a meteor strikes and obliterates Earth? Is there ice cream in the fridge?

These are the questions that keep me up at night, and they all (well, most) point towards Mars. (One question points to the fridge.)

I believe that part of what makes humanity amazing is our drive to explore, discover, and seek out the unknown. One of the next great steps for humanity is to colonize another planet and begin our exploration into the universe. To quote Randall Munroe, “The universe is probably littered with the one-planet graves of cultures which made the sensible economic decision that there's no good reason to go into space - each discovered, studied, and remembered by the ones who made the irrational decision.”

From December 29th to January 13th, I served as the GreenHab Officer of Crew 186 from Purdue to the Mars Desert Research Station (MDRS). The MDRS was built in 2001 in the Utah desert by the Mars Society to provide a testing facility with a crew habitat, greenhouse, science lab, and observing telescope that supports “research in pursuit of the technology, operations, and science required for human space exploration.” The station is occupied by crews on a bi-weekly rotation that serve as test subjects, conduct their own research projects, and gain valuable training for what it might be like to be an astronaut. To realistically simulate a Mars mission, the MDRS is located in the Utah desert, crew members must stay in the habitat in close quarters at all times unless they are on a scheduled excursion outside, all excursions must be conducted in space suits, and communication with the outside world is limited to two hours of email per day.

The Purdue crew started every morning with a group yoga session led by our Executive Officer to help us relax and get mentally prepared for our coming tasks. This step was crucial given the cramped habitat and constant interaction with other crew members. The day would continue with a delicious breakfast prepared by one of the crew members.
Freeze dried food made up the bulk of our supplies, so the cooks had to get creative. Brownie-maple syrup crepes and blue-blueberry pancakes were some of the crew favorites. After breakfast, half of the crew would gear up in space suits for the daily excursion. Some excursions included retrieving a geological sample, testing navigational equipment, or exploring uncharted territory. Once they departed, the rest of the crew would complete their duties and work on individual research projects. As the GreenHab officer, it was my job to care for the plants in the greenhouse and produce as much fresh food as possible. By the end of the rotation we were able to enjoy a fresh “Martian” salad made from radish sprouts, green beans, cilantro, dill, and basil. I had also helped establish plantings of 35 other crops for future crews to harvest. My research project studied how to grow microgreens with minimal inputs as well as how microgreens adapt to the different microbial environments that may establish in a Martian habitat. In the afternoon, the excursion crew would return to the habitat, conduct a daily mission debrief, and send reports on our activities back to Earth. To wind down in the evening, we would enjoy group dinner (again, freeze dried food) and often play cards, sing karaoke, or watch a movie. We would usually turn in early to our cramped bunks to try and get a full night’s rest for the next busy day.

Our time in at the Mars Desert Research station led to valuable research on maintaining crew wellbeing in close quarters, navigating in emergency situations, producing food with minimal resources, understanding the microbial community in a Martian habitat, and more. But maybe more importantly, we got the chance to see if we could handle what it is like being an astronaut for two weeks, and ultimately, if we have what it takes to go to Mars.
New Scholar Day 2018

By Melanie Martinez, B.S. Genetic Biology, May 2021

and Maya Black, B.S. Genetics, Cell, Molecular, and Developmental Biology, May 2020

New Scholar Day is an annual event that is meaningful and cherished by all Beering scholars, past, present, and future. It is our opportunity to show prospective scholars how amicable, sincere, cooperative, and down to earth we can all be. Every year, we are excited to learn about the students that were given this incredible opportunity, and we want to do all that we can to support them in their decision to come to Purdue University.

This year, the Honors College selection committee selected nine new Beering Scholars. Five of these nine were able to come to New Scholar Day, where they were able to shadow current students, visit their academic departments, and mingle with other prospective Beering and Stamps students at dinner. In the morning, students were able to talk with their paired current scholar before being welcomed by Dean Rhonda Phillips and taken on a tour by an Honors College Ambassador. From there, students were able to freely interact with other scholars. We had lunch at Windsor Hall, where we learned more about the interests and passions of our incoming students.

During this time, parents were able to hear from current students on an informal panel as well as ask questions about financial aid to Honors College staff. They were reunited with their children at dinner, both parties exhausted from the activities from the day. For some students, the adventure wasn’t over yet. We hosted a game night in the Beering Reading Room and played Codenames, Uno, and 1,000 Blank White Cards. We were able to share laughs and last-minute advice to the students that stayed, and we hope that we can share more memories with them when they come here as undergraduate students in the fall.

Beering Scholars new and old exercise their brains during New Scholar Day game night.
This past March, BSSA spent nearly an entire Saturday, from 8:00 AM until 3:00 PM, helping out Lafayette’s local Habitat for Humanity chapter. Garrett, Paul, Melanie, Gina, Katie, Kat, and I worked on a local home about a few blocks away from the chapter’s headquarters during the home’s final steps before its new owner would receive her keys and be allowed to move-in. We worked alongside the soon-to-be owner, cleaning each individual room of the interior, ensuring there were no leftover paint stains or dirt within the house before the key-awarding ceremony the next day. Some of us also helped level the ground of the yard, as well as remove a massive cemented clothesline pole from the ground that had been left to rust on the property. “Power-Washing” Paul even cleaned the entire exterior of the building as well as the storage shed. It was a very successful, rewarding day for BSSA!

Every year, incoming freshman are paired with older scholars as “Beering Buddies” for mentorship and social activities. Some highlights from this year include bouncing at the trampoline park (left) and ice skating at the Riverside Skating Center (right), both of which involved fun footwear.
We hope you enjoyed catching up with the Beering Scholars!

The world moves fast, and few places move faster than the world-class Purdue University. Our goal is to continue to build a Beering network, hearing stories from and offering opportunities to all.

We invite you to join the Beering conversation by filling out our brief survey at: http://goo.gl/blbkBz

Visit our BSSA website to find our upcoming events, study abroad and internship destinations, photo gallery, and newsletter archives: http://purduebeeringscholars.weebly.com

Or email us at: purdue.beeringscholars@gmail.com

This newsletter would not be possible without the contributions of a great many. We would especially like to thank Dean Rhonda Phillips and Ms. Catharine Patrone, our BSSA advisors.

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