

# 3D

DIGEST | 2019

**DARTMOUTH IN ALL ITS DIMENSIONS**

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Dartmouth College is defined by its people, and 3D is a magazine that tells their stories. It's not meant to be comprehensive, but an evolving snapshot as vibrant and prismatic as the school itself. 3D is Dartmouth in all its dimensions.



**On the cover:**

Julia Huebner '20 atop  
Mount Ascutney

Cover photograph by Don Hamerman

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I've been an admissions officer for a long time and have been privileged to serve as dean at three institutions over the past 24 years. In those roles, I've surfed the rising wave of selectivity as well as the harried skid of an economic downturn or two. I've witnessed the shift from typed applications filed in color-coded jackets—the stacks of which were oddly pretty—to a queue of PDFs that glow on the screen of my Mac.

Every one of those admissions cycles was exciting and memorable—often with some new twist that rearranged the norm—but this past year felt different. Different in the way people view the admissions process and its outcomes. Different in the fevered turbulence of the admissions landscape. Different in the degree to which its equilibrium was upended by lawsuits and scandals, by critiques of the work we do and the way we do it, by suggestions that our decisions are “random” and unfair. Different in the uncertainty that sits ahead of us. The narrative of college admissions has become clouded by doubt and defensiveness. But I am determined to embrace the upcoming admissions cycle with clarity and optimism about our purpose, our values, our commitment to students, and the integrity of our process.

To me, three tenets frame a sound, ethical admissions process:

- 1. We read holistically** because students are multifaceted individuals with subtle and emerging talents and perspectives. An applicant is not solely a string of letters and numbers that reflect academic achievement. Curiosity counts. Creativity matters. Character illuminates and the ability to collaborate is a tangible asset for success in the classrooms of today and the workplaces of tomorrow. Merit is a nuanced, multidimensional concept. It's academic, artistic, *and* athletic. It recognizes achievement as well as potential. It is numerical as well as qualitative, concrete as well as philosophic. It reflects our values, priorities, and aspirations as we pair academic excellence with qualitative excellence, demographics with talent in an artful tango between data and voice.
- 2. We value diversity** in all its forms because the world circa 2020 is getting more, not less, diverse. People who embody it and who thrive amidst heterogeneity (of background, outlook, ideas, socioeconomic status, sexual identity, geography, citizenship) possess an essential prerequisite to success in the societies of our future. Admission officers have an opportunity—I'd even call it a responsibility—to frame that future with an inclusive, optimistic, multicultural lens. American law permits the use of race as one factor among many; let's not cower under our desks as others challenge that principle. If we believe it, we must defend it.
- 3. We must affirm** candidacies in a process defined by an abundance of quality and a scarcity of opportunity. At Dartmouth, we negotiate an intensifying excess of demand with integrity, thoughtfulness, and humility as we meet many, *many* more qualified students than we can invite to join us in Hanover. Saying “no” more often than we might like is an organic byproduct of our work; it is not our purpose. Informed subjectivity is an unavoidable element of selectivity. That makes the outcome unpredictable, but it does not make it “random.”

As a veteran admission officer, I am still inspired by the journey from home to college, from family to independence, from potential and promise to achievement and fulfillment. I love my work because I see the lives that improve as a result of it. It is as humbling as it is rewarding.

College represents opportunity, and admission officers are the stewards of that promise. Let's celebrate that.

**Lee A. Coffin**

*Vice Provost for Enrollment  
and Dean of Admissions & Financial Aid*



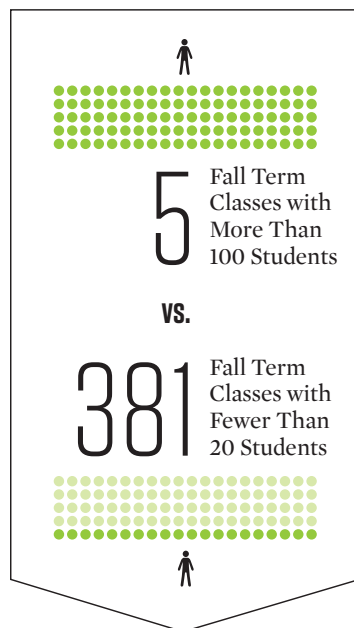
# It's a fact.

## BASIC FACTS

**4,410** Number of Undergraduate Students

**96%** 6-Year Graduation Rate

**100%** Demonstrated Financial Need Met



**7:1** Student-to-Faculty Ratio

## ENROLLED CLASS OF 2023 (as of September 2019)

### Region of Origin

**50**

US States Represented



**10%** / Midwest



**19%** / Mid-Atlantic



**18%** / New England

**51**

Countries Represented



**21%** / West



**20%** / South

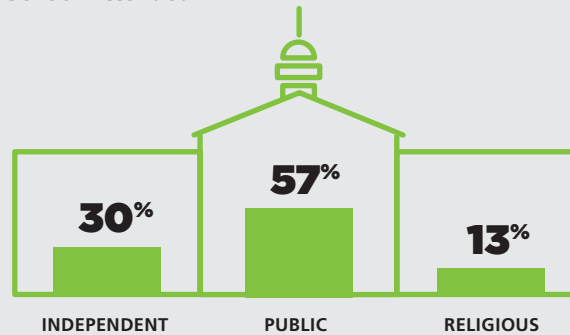


**12%** / Outside the US

**66**

Languages Spoken at Home

### Type of School Attended



**25**

Tribal Nations and Communities Represented

**15%**

First Generation to College

**7.9%**

Acceptance Rate

**46%**

Receiving Need-Based Aid

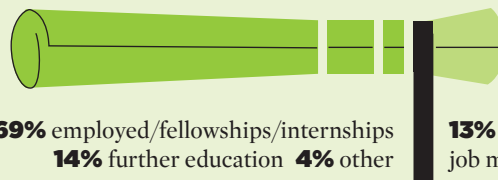
**\$55K+**

Average Need-Based Grant

## CAREER AND INTERNSHIP FACTS FOR THE CLASS OF 2019 (as of graduation day)

**86%**

HAD FIRM PLANS



**69%** employed/fellowships/internships  
**14%** further education **4%** other

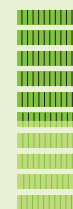
**13%** were in the job market

### Intended Degree

**36%** Masters **14%** PhD  
**17%** Bachelor in Engineering  
**20%** Medical Doctors  
**10%** Juris Doctors **4%** Other



**\$70K+**



**56%** have a starting salary of over \$70K



**87%** had an internship



**58%** participated in academic research





## ARUNAV JAIN '20

MAJOR: ENGLISH WITH A MINOR IN STUDIO ART

HOMETOWN: JAIPUR, INDIA

Arunav Jain '20 loves office hours. "Spending time with professors out of class is such a constructive way of learning their interests and expectations and sharing your aspirations," he says. Arunav also devotes time to world literature and two on-campus jobs: student coordinator for the Pan Asian Community of OPAL (Dartmouth's Office of Pluralism and Leadership), and tutor for RWIT (Dartmouth's Institute for Writing and Rhetoric).

After arriving on campus, Arunav quickly realized how difficult it can be for South Asian students like himself to feel represented in a culture where Asian often equates to East Asian. "Colloquial association of 'Asian' with 'East Asian' can create alienation among people who identify with non-East Asian cultures," he says. "I've consciously tried to mitigate this effect by broadening the scope of events." His hard work and understanding of the nuances of social justice and how they intersect with his own international identity has already made an impact. "OPAL events have seen more participation from South Asian and Southeast Asian students in the last two years," he says. "And we can do even more."

Arunav's growth mindset extends to his own work. One of his favorite aspects of RWIT tutoring is how it heightens his own writing craft. By empathizing with those he helps, he's been able to pick up ways to improve his own work. "We make a point to appreciate students' writing strengths," he says. "I've passed on tips learned from my professors and learned tricks from my tutees."

Arunav's pursuit of excellence is driven by his fierce curiosity. His research with Sam Moodie, an English professor of Caribbean and African diasporic literature, exposes him to new analytical techniques and inspirational stories. Professor Moodie's work, particularly its emphasis on marginalized communities, has demonstrated the importance of highlighting the voices of those underrepresented in academia.

Arunav appreciates the academic immersion he's found at Dartmouth. "It always has been very important for me to connect with subjects I like," he says, "so I am grateful for professors who take a personal interest in student learning." He plans to pursue literature in graduate school and to become a professor of post-colonial world literature. And when the time comes for him to conduct his own office hours, Arunav will make sure the door stands wide open.

—Sarah Lehan '20



# Through





# Open Doors

PHOTOGRAPH BY DON HAMERMAN

Pictured: In the Lathrop  
Gallery of the newly  
renovated Hood Museum



### Dirt Cowboy Café

Dirt Cowboy Café sits right where the Dartmouth campus spills into the streets of Hanover. Professors meet advisees for coffee alongside students catching up with friends. The beauty of Dirt Cowboy is that you can be as relaxed or as productive as you need to be on any particular day. Students become regulars because of concoctions like the strawberry-kiwi tea, the mocha cappuccinos, the pastries, and the quiches. The coffee is ground fresh every day, one reason it's been voted Best Gourmet Coffee Shop in the area seven years in a row. But it's not just the food that makes the space a cornerstone of Hanover life—it's the people you find, both at the tables and behind the counter.

—Caroline Cook '21

**HANOVER  
HOT  
SPOTS**  
—





# HUMANS OF HANOVER

DARTMOUTH IS DEFINED BY ITS PEOPLE, SO WE'RE EXCITED TO CELEBRATE THE NEWEST MEMBERS OF OUR COMMUNITY. MEET SIX NEW MEMBERS OF THE CLASS OF 2023 THROUGH EXCERPTS FROM THEIR "WHY DARTMOUTH" ESSAYS AND FIND OUT WHY THEY'RE SO EXCITED TO DON THEIR DARTMOUTH GEAR.



**Jimena Pérez**, Los Angeles, CA

Hanging out on the Green, I fell in love with the rural setting. Faces, although unfamiliar, greeted me and made me feel welcome, making me crave a close-knit campus like this one where students and community are united. Dartmouth's strong emphasis on a liberal arts education suits my hunger for learning. I am encouraged to explore my own individual interests while also focusing on my intended major.



**Finn Hulse**, Williamsburg, VA

To me, Dartmouth is an idyllic learning community located in my favorite place on Earth. Half my family lives in the Upper Valley; much of my childhood has been spent there. But drooling over new flavors at Morano and canoeing on the Connecticut pale in comparison to Dartmouth. There are few places where an undergraduate can do cutting-edge physics research and dissect ideas in a six-person philosophy class all in the same afternoon ... just after returning from a term in Thailand.



**Catharine Jacobsen Herrera**, Niteroi, Brazil

As someone who has always lived in big cities, I first thought Dartmouth would not be a good fit. But after discovering the close and adventurous community that the university fosters, I will gladly call it home. I can picture myself hiking with friends, competing during the Winter Carnival, or exploring a completely new activity. Dartmouth's academic program is what I look for to become a more prepared professional and citizen.



**Isabella Sicker**, Louisville, CO

Dartmouth shares all my favorite aspects of my hometown: trails in our backyard, easy access to skiing, and an active, outdoors-driven culture. What excites me even more is what sets Dartmouth apart. Dartmouth's community of caring, down-to-earth individuals—each with unique aspirations and quirks—cultivates a distinctively supportive community to which I am eager to contribute. I look forward to everything from cozy afternoons at the Collis Café to joining research efforts like Professor Carey's exploration of compulsory voting in Venezuela.



**Julia Luo**, San Diego, CA

When I set foot on the Dartmouth campus in the midst of a blizzard, I experienced two firsts: cold like never before and a student approaching me while on tour. The latter confirmed my initial perception: nestled beneath frosty pines, there is a community pulsating with intellectual vitality and vibrant conversation—one so warm it makes me forget the cold. I can't wait to go sunrizing (hiking at sunrise) and meet a whole house of best friends. In Dartmouth, I see a home.



**Tulio Huggins**, Mechanicsburg, PA

I love the flexibility of the D-Plan. To have the ability to choose which terms I want to spend away and which terms I will stay on campus is thrilling. Knowing that I will have more opportunities for different learning experiences, such as interning during the winter in Congress or doing a term abroad at Science Po in France, inspires me to make the most out of my time in college.



# CHRISTINE DONG '19

MAJOR: ECONOMICS  
HOMETOWN: COQUITLAM, BRITISH COLUMBIA, CANADA

# & NINA PAVCNIK

NIEHAUS FAMILY PROFESSOR IN INTERNATIONAL STUDIES,  
CHAIR OF ECONOMICS DEPARTMENT



**CHRISTINE DONG '19 AND PROFESSOR NINA PAVCNIK OF THE ECONOMICS DEPARTMENT SAT DOWN WITH 3D TO DISCUSS THEIR RECENT COLLABORATION ON A RESEARCH PROJECT FOR THE FEDERAL RESERVE BANK.**

## Where did the idea for your project come from?

**Nina:** I was invited to write one of four papers for a Jackson Hole symposium organized by the Federal Reserve Bank on how international trade affects inequality in labor markets in developing countries. I wanted to present long-term trends on the global economy. Christine's role was to review reports produced by the World Bank, the International Monetary Fund, and the World Trade Organization.

**Christine:** Unfortunately, the reports didn't actually include data that went back as far as the early '80s. Once we realized that, we started from scratch and created a few key figures that helped us understand how the world economy has changed.

## How did you two end up working together?

**Christine:** Sophomore year, I joined the Dartmouth Economic Research Scholars (DERS) Program. At one of their dinners, I talked with another professor about doing research, and he introduced me to Professor Pavcnik.

**Nina:** The economics department faculty wanted to make the experience more personal for students, so we created the DERS program to identify students interested in economics research during their sophomore years. The idea is to help them understand what economists really do. Economists try to find answers to a broad range of questions, so whatever social issue you're interested in, economics gives you tools, theoretical and empirical, to help you understand how those issues affect lives and society.

## So why Dartmouth? Why do this here?

**Nina:** I really wanted a place where I could work directly with students and engage with them in research. Not many schools enable professors to do high-level research and interact meaningfully with undergraduates every day; Dartmouth is really unique.

**Christine:** I knew I wanted a place that prioritizes the undergrad experience. The opportunities that I've had here—inside the classroom and out—have been exactly what I was looking for.

**Nina:** When you're here, you can focus on what matters for you, professionally and personally. Economists like to talk about 'transaction costs,' and transaction costs for having a balanced life here are low. I think the location strengthens the bonds of the community.

## Many still think of economics as a male-dominated space. How important is an experience like this?

**Christine:** It's so cool to see how Professor Pavcnik balances her professional life with her personal life. She's chair of the department now and is always running to a conference or working on a paper, but at the same time, she always talks with such love about her family. It's inspiring.

**Nina:** Thank you. I've relied on female mentors throughout my life, and I'm very thankful for them. One of my goals now, as chair, is to make sure that students understand what economics really is and the value of majoring in it to engage in key issues facing society, like health care, education, and globalization. We want the major to appeal to everyone, regardless of gender. The focus on teacher-student interactions helps facilitate that kind of mentorship.





Pictured: In Pine restaurant, where students and professors can get free lunch as they build mentor-student relationships



A woman with short blonde hair and bangs, wearing a white headband, is leaning on a black metal balcony railing. She is wearing a white long-sleeved top with large black polka dots and blue jeans. She has a gold necklace with a small pendant and gold hoop earrings. Her left hand is resting on the railing, showing several rings and tattoos. The background features a modern building with curved architectural elements and large windows. The word "Art" is written in a large, white, serif font on the right side of the image.

Art





PHOTOGRAPH BY DON HAMERMAN

# and Soul

Pictured: In the lobby of the Hopkins Center for the Performing Arts



## CHARLOTTE GRÜSSING '19

MAJOR: STUDIO ART AND ASIAN AND  
MIDDLE EASTERN STUDIES  
HOMETOWN: LONDON, UNITED KINGDOM

Charlotte Grüssing '19 always knew that she would study studio art, but surprised even herself by choosing Dartmouth over a traditional art school in her home city of London. Driven to enhance the arts at Dartmouth, Charlotte has dedicated her time to both her artistic endeavors and a wide-ranging intellectual adventure in the liberal arts.

Though Dartmouth's Hood Museum has been undergoing refurbishment for Charlotte's last few years on campus, the museum remains a thread through her experience. As a first-year student, she was already showing work from her architecture class at the Hood before renovations began. Later, for an assignment in her Japanese printmaking class, Charlotte submitted a proposal to the Hood suggesting prints that they should purchase. "They acquired some of them," Charlotte says. "Having the Hood actually buy pieces you love is incredible." Now she works as an intern at the museum, leading campus engagement initiatives for its reopening in January of 2019.

Charlotte also brings art to new spaces on campus. Last spring, she curated a show called *Big Girls Do Cry*, featuring 20 or so female undergraduate artists. The show, she says, "celebrated womanhood and the struggles that come with it." Recognizing art's power to make challenging conversations about womanhood and mental illness more accessible, Charlotte curated the show in KDE, a sorority on Webster Avenue. "Bringing a large-scale student art show to a social environment is one of my proudest achievements at Dartmouth," she says.

After an off-term in Hong Kong, where she concentrated on honing her photography skills, Charlotte returned to Dartmouth and to curating. She collaborated with the Coalition for Israel-Palestine to bring artist Yasmeen Mjalli and her work *The Typewriter Project* to campus. Mjalli had been traveling the world transcribing women's stories about womanhood and sexual assault on a portable typewriter. Charlotte turned those written works into a visual and auditory experience at the Black Family Visual Arts Center at Dartmouth; "I basically live there," Charlotte says with a laugh. Titled *Not Your Habitbi*, meaning *Not Your Baby*, the show is another example of Charlotte's use of art as a vehicle for honest and difficult conversation. "Yasmeen Mjalli gave our community an opportunity to affirm so many individuals and the resulting work is inspirational. I hope through my curation, I have done justice to her words and the Dartmouth students who so bravely shared."

Charlotte has leveraged her passion for art to inspire powerful dialogue in her community. "I'm thinking for myself," she says. "I'm becoming a better person." Her art helps others do that, too. —Caroline Cook '21







# Reinventing Invention



**T**he first incandescent light bulb. The first clinical x-ray. Radar. Artificial intelligence. All had their roots at Dartmouth.

A school with a legacy of invention as long and as storied as Dartmouth's has a lot to prove in a contemporary world that prizes innovation. Dartmouth scientists and engineers, artists and social scientists, management brains and entrepreneurs are all turning out world-shifting discoveries at an impressive pace, a feat made possible by innovating the very climate of innovation.

Sounds good, but how do you reinvent invention platforms? We crisscrossed the campus talking to professors, students, and administrators, and here's what we found.

First stop: the DALI Lab to meet with Director Tim Tregubov, senior lecturer in computer science, and Faculty Director Lorie Loeb, research professor and director of Dartmouth's digital arts programs. The Dartmouth Applied Learning and Innovation Center (DALI) is a new-solution think tank where students pool their skills to solve challenges using digital invention. Blabl is one example. It's an app that encourages kids with speech impediments to practice speaking. Codeable is another—a Peruvian coding bootcamp designed to give urban youth in Lima the job skills they need to rise out of poverty.

"Dartmouth has extraordinarily smart, capable students and DALI Lab is an opportunity for them to apply their knowledge, their skills, and their creativity to real-world problems," Loeb says. "In the course of increasing their coding expertise, they also learn about octopus cognition, autism, protein structures, feminism—whatever a particular project entails. And they learn how to collaborate."

## **Inspired collaborations lead to inspired products**

Undergraduates apply for highly competitive paid internships at DALI Lab just as they would for jobs out in the marketplace. At any given time, the Lab has 65 students on the payroll for ongoing projects, which might be the brainchild of students, faculty, or corporate or nonprofit partners.

The student leadership team is responsible for hiring, onboarding, mentoring, and keeping the Lab forward-looking and evolving. It's akin to running a whole stable of startups, Loeb and Tregubov say, with students learning the hard lessons of hiring and firing personnel, motivating teams, setting goals, and evaluating metrics of success.

The skills students learn can lead to real-world success. CEO and Founder Terren Klein '17 and CTO Robin Jayaswal '18 worked with the DALI Lab to take their mobile app College Pulse to the next level—the academic marketplace. The app is designed to gauge campus opinion through reliable, transparent, and cost-effective polling. Pulse now operates on dozens of college campuses and just closed a \$1.35M funding round after its leaders participated in the country's top new-business accelerator Y Combinator.

"There isn't anything like DALI Lab anywhere," says Loeb. "Even freshman have the opportunity to participate in the DALI experience. DALI Lab is more than research. It's more than a learning experience. Students exercise true impact. It's a revelation to them to see how much their individual efforts truly matter."

## **Busting barriers to learning**

A brief stroll across the Green from DALI Lab is DCAL—the Dartmouth Center for the Advancement of Learning. DCAL is sending seismic waves through academic tradition. Knowledge, their team believes, cannot be delivered; it must be constructed anew by each learner.

"DCAL's primary objective is to advance, invigorate, and extend pedagogical training to faculty so that coursework and extracurricular work is as rich as it can be," director Scott D. Pauls explains. "The programs we're running are tools to break out of the mold of more traditional course offerings and provide opportunities for students to learn in fresh, revelatory avenues."



Here are just a few of those avenues:

- The Dartmouth Vietnam Project connects undergraduates with both veterans and anti-war activists to conduct oral histories related to the Vietnam War.
- The “Black Theater, USA” course gives students the chance to help curate exhibits for the new National Black Theater Museum in Memphis, TN.
- The “Biologic Lessons of the Eye” course brings students to Aravind Eye Hospital in Tamil Nadu to present research and observe the delivery of eye care in India.
- The Hop Curricular Connections program supports faculty in integrating Hopkins Center for the Arts performances and artist visits into their courses.
- Social Impact Practicum courses send students out into the community to lead innovations such as a digital storytelling project at a local park.

Pauls notes that DCAL also offers the ambitious Stamps Scholars program, which gives students up to \$10,000 to design their own experiential learning plan. Stamps Scholar Saba Kaboly Nejad '18, for example, was inspired by a discussion in physics class to consider approaching cancer treatment from a physics perspective—far outside the traditional biological approach. In keeping with the cross-disciplinary nature of her project, Nejad was guided by a trio of faculty mentors from physics, astronomy, and engineering.

The diversity of interests among Stamp Scholars is striking. Allyson Block '19 is examining the normalization of gun violence in Australia and the US. Connor Bondarchuk '19 is investigating HIV treatment adherence in South Africa. Evan Morgan '19 is analyzing data-driven journalism of the opioid epidemic, and Michael John '20 is looking at ethnic tension in connection with political and economic development in the Caribbean.

### Replacing the “sage on the stage” model

Anthropology professors Sienna Craig and Laura Ogden credit DCAL's Gateway Initiative with changing the face of a core introductory course and increasing student interest in their discipline. The Gateway Initiative helps faculty reinvent courses in collaboration with dedicated experts in instruction design, project management, and analytics. “We've been able to reinvent ‘Introduction to Cultural Anthropology.’ It's now a more engaged class, rather than a ‘sage on the stage’ model of lecturing,” Craig says. “Students are encouraged to relate what they are learning to their own lives and Dartmouth culture, using the tools of anthropology.”

The redesigned course now includes ethnography labs that help students learn how anthropologists come to know what they know—the tools and practice of anthropology. Projects might include analyzing a particular scene on campus or nearby. Some students have observed social norms and cultural practices in a particular dining hall. Others have spent time as participant-observers at local farmers' markets or at annual festivals like Winter Carnival, applying anthropological thinking to these familiar places. The class also visits the Hood Museum and learns through collections-based experiences.

“Ironically, students often think they prefer lecture classes because they can sit back and take notes without having to make too much of an effort to engage,” says Ogden. “The experiential aspect is pushing them. It's less comfortable and demands more of the student as a person and as a scholar. It requires that they learn in new ways.” Indeed, the new model is a lot more challenging for faculty, too. “Instead of correcting multiple choice or short essay tests,” Craig notes, “we're reading upwards of 60 student essays for each course and evaluating a host of other small assignments. It's more work, but worth it. The new model is so much richer and the students are so much more engaged.”

### Wheelchairs need snow tires, too

We wrapped up our innovation tour at Thayer School of Engineering. Students and faculty at Thayer have produced advances in everything from healthcare technologies to green energy. With the help of experienced faculty

**“The beauty of a liberal arts college like Dartmouth is that students have the flexibility to traverse as many disciplines as they want to in pursuit of an idea.”**



entrepreneurs and extensive Dartmouth resources, they have turned their ideas into vital discoveries and successful startups.

In fact, one in three members of Thayer faculty have spun their innovations into companies. Thayer professors Tillman Gerngross and Charles Hutchinson, for example, invented proprietary technology for turning yeast cells into therapeutic protein factories. They sold their company GlycoFi Inc. to Merck for \$400 million, the third-highest price paid for a private biotech firm.

While Thayer students have the benefit of direct mentorship from professors like Gerngross and Hutchinson, they also have access to Dartmouth's entrepreneurial support system. Thayer professors are continually focused on reengineering courses so that students learn to innovate productively and across disciplines early in their academic careers.

Engineering professor Vicki May is an earthquake engineer who takes groups of students to Haiti to work on pioneering water projects and earthquake-resistant affordable housing. May is heavily invested in delivering high-impact learning experiences, and she says that Dartmouth's “Intro to Engineering” (ENGS 21) totally makes the grade. The course is the dynamic synthesis of engineering, sustainability, mathematics, economics, management, and communications.

“What distinguishes ENGS 21,” May says, “is that the projects are student-driven. At other schools, students are assigned an engineering problem—make a robot that does this or a drone that can fly that high. Here at Dartmouth, undergraduate teams in ‘Intro to Engineering’ are charged with devising—and solving—their own challenges. Because they come up with the sticky problem themselves, they're more invested and more motivated to channel all their ingenuity into a solution.”

Projects are evaluated in terms of their technical feasibility, economic viability, and social significance. Notable ENGS 21 inventions include a gyroscopic bicycle flywheel that makes it easier for children to learn to ride, snow treads for wheelchairs, and a high-pressure hand pump that keeps vaccines cold when electricity is out in disaster-torn regions. Many products end up getting patented, and some have developed into thriving startups, often under the guidance of The Magnuson Center for Entrepreneurship at Dartmouth, which helps campus innovators spin their breakthroughs into successful companies.

“The beauty of a liberal arts college like Dartmouth,” May adds, “is that students have the flexibility to traverse as many disciplines as they want to in pursuit of an idea. We do everything we can here to promote exploration. Students who come to Dartmouth engage in enough rich and varied experiences to discover their own passions.”







A man with short dark hair and glasses, wearing a dark blue suit jacket over a light pink button-down shirt, stands in the center of the frame. He is looking directly at the camera with a neutral expression. Behind him is a large, colorful grid of square frames, each containing a different colored square or a small photograph. The colors of the frames include red, blue, yellow, green, and white. The overall composition is a portrait of a man in a professional setting.

# Bridging the Da

Pictured: In Kemeny Hall





## YUSAKU HORIUCHI

PROFESSOR OF GOVERNMENT AND MITSUI PROFESSOR  
OF JAPANESE STUDIES



Data visualization may seem like an unlikely area of expertise for an endowed professor of Japanese studies and a professor of government, but Yusaku Horiuchi's work crisscrosses disciplines as adeptly as he does. His data-oriented research is as applicable to his classes in government as to his classes in quantitative social sciences, which explore the ways a variety of data can be used to both identify and answer important research questions relevant to society and politics. "Regardless of what students major in, being able to collect, wrangle, visualize, and analyze data is an essential set of skills necessary in the age of big data," he says. "I certainly don't expect all my students to do a PhD, but I am confident that data skills will serve them well in any career."

Addressing topics like Japan's Self-Defense Forces, immigration policies in developed countries, and the effects of mass media, many of Horiuchi's recent works use survey experiments and data analysis to make broader contributions to policy debates. His latest book project is particularly relevant to his students, delving into perceptions of diversity on American college campuses. He finds that although some students may oppose affirmative action in the abstract, when it comes to preferences for faculty candidates and undergraduate applicants, in practice, they tend to support prioritizing diversity. Like much of his other work, the project shows that the complexity of human behavior and psychology can rarely be captured without using good data and good methods.

For all his enthusiasm about data, Horiuchi's most abiding passion as an academic is in mentoring students. "Professor Horiuchi spent the entire day before our final exam answering questions and helping students," remembers Katie Clayton '18. "He called it an office day instead of office hours." Now graduated, Katie says that going above and beyond is how Professor Horiuchi operates. They have published three scholarly articles together (with more in the pipeline) and Katie is a co-author on their latest book. He has advised her throughout her graduate school application process, used his own research funds to help her attend conferences in the US and abroad, and still sends her academic articles and news clips that might be relevant to her research.

For Professor Horiuchi, all that effort is the most rewarding aspect of teaching. "It's great to give students the chance to make a real contribution to research in their field before they graduate," he says. "But it's also just so much fun!"  
—Jimmy Nguyen '21

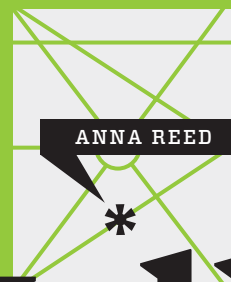
# ta Divide







# Walking the Walk



**ANNA REED '19 GREW UP IN MOORE, OKLAHOMA AND STUDIES ANTHROPOLOGY AND SPANISH. SHE'S INVOLVED WITH NATIVE AMERICANS AT DARTMOUTH (NAD) AND SUMMER ENRICHMENT AT DARTMOUTH (SEAD). SHE WORKS IN THE ADMISSIONS OFFICE AS A SENIOR FELLOW AND SPENDS HER FREE TIME TAKING PHOTOS AND PAINTING WITH WATERCOLORS. HERE, SHE REFLECTS ON HOW SHE WAS ABLE TO DISCOVER AND INTERWEAVE HER ACADEMIC PASSIONS.**

I started my Dartmouth journey a bit clueless and definitely unprepared. I did well in high school, but I was never truly challenged and just didn't know how to best participate in my classes. Though I had some struggles in my first year, the Native Americans at Dartmouth (NAD) community became my support group, and older students helped me navigate my path. But I really found my way by finding something I was passionate about.

I took a course in Native American Studies that focused on North America's tribal nations and fell in love with the study of indigenous groups. Inspired, I resolved to study in Cusco, Peru my sophomore year. That's when and where I began to realize that issues of indigeneity were much larger than what I'd experienced at home. I'm part Choctaw, and even though I only started exploring this part of my identity when I was 16, Dartmouth helped me understand all the systemic challenges that surround indigeneity. Those lessons were reinforced by being immersed in the diverse indigenous community at Dartmouth, one that helped me gain more and more confidence in my origins.

As I was exploring my roots, I also found myself examining the educational process I had just gone through. To understand the broader landscape of educational equity, I chose to take an off-term during my junior year to

participate in Summer Enrichment at Dartmouth (SEAD), a program geared toward low-income, underresourced, or at-risk high school youth. I worked at a school in the Bronx mentoring ten sophomores affiliated with SEAD. I found both familiarity and challenge within this environment; I knew some of the students' struggles all too well, but the experience transformed my perception of educational equity as a whole. It helped me understand that there is so much variation in the quality of education based on where you come from. Our communities of color don't receive enough support, nor does rural white America. We need more funding for education across the board so that we can equalize the quality of education.

Now in my senior year, I recently returned to Peru to conduct fieldwork in a primary school. My goal: to write an anthropological evaluation of bilingual education practices for my honors thesis. I researched educational equity for students who face a transition from speaking their indigenous language to speaking Spanish. Studying educational equity in an indigenous group through an anthropological perspective taught me something just as profound—how to blend the things I'm passionate about.

\*

Indicates location on the Dartmouth Green where Anna is standing.



# Fashion For

Pictured: On the steps  
of Rauner Special  
Collections Library

PHOTOGRAPH BY DON HAMERMAN





## EMMANUEL HOWZE-WARKIE '18

HOMETOWN: CLEVELAND, MS  
MAJOR: SOCIOLOGY MODIFIED WITH FILM  
AND MEDIA STUDIES

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From Broadway star to Navy reservist to fashion blogger, Emmanuel (Manny) Howze-Warkie '18 has entertained a broad slate of career aspirations. Dartmouth came across his radar for its music major (back when Broadway star was still at the top of his list). But what ultimately sealed the deal was the genuine devotion Manny recognized in his alumni interviewer who, in his words, "drove over an hour to meet me in middle-of-nowhere, Mississippi."

After a year at Dartmouth, Manny experienced what he calls "a quarter life crisis." Recognizing that musical theater was not his true calling (although he still sings with the Aires a cappella group), he withdrew from Dartmouth for a year to join the Navy Reserve. "Coming back to Dartmouth, the person I was—and still am—is just much happier than before my year away," he says. "It was the gap year I never knew I needed." Manny has since shifted gears towards a major in sociology modified with film and media studies, aiming for a career in fashion. He selected his major by paying attention to the classes he loved most. After exploring social deviance and the history of slavery at Dartmouth through an assortment of courses, he knew sociology was what he wanted to study.

The leap to a career in fashion could strike some as head-scratching, but Manny isn't worried about that. "Students here aren't too obsessed with the idea of a major. What matters most are the skills and experiences we build during these four years. It gives us the ability to be flexible and versatile," he says. "So I'm taking the classes that speak to me. At the same time, I'm running a fashion blog and building a portfolio. When I look at the people behind the fashion companies I admire, many didn't study fashion at all. In fact, it's the outside perspectives that they've brought to fashion that have revolutionized the industry." What he has learned in sociology, he believes, is essential to the kinds of changes he'd like to make in an industry saturated with pollution and overconsumption.

Manny has spoken with Dartmouth alums working at *Vogue* and Jet Fashion, and one even offered to go over his resume with him. "The biggest lesson I've learned at Dartmouth is to never be afraid to ask questions," he reflects. "Whether professors or alums, so many people are willing to sit down with you and have a conversation. So many things have opened up to me because I just cold-emailed someone and put myself out there." Only time can tell what that open-minded attitude will lead to next.

—Ioana Andrada Pantelimon '22





**RESIDENT:** MAX FARRENS '20

**HOMETOWN:** BEND, OR

**MAJOR:** NEUROSCIENCE



# Living the Green Life

Undergraduate Advisors (UGAs) live in residence halls alongside their peers and host floor meetings, plan social events, and serve as invaluable resources to other students. 3D sat down with Max Farrens '20, a UGA for first-year students, to find out what it's like to hold this challenging and multifaceted role.

## **What inspired you to be a UGA?**

**Max:** It was actually because of my first-year UGA. He was the perfect mix of interested, sympathetic, and hands-off. He knew we didn't need our hands held, but he made it clear that he was always available to listen. I could go to him, but he was also one of my friends. So, I felt like I should try to pay that forward.

## **What else are you involved with on campus?**

**Max:** I work in the Social Neuroscience Lab doing research on how the brain handles social situations and information. I also have co-led the Dog Day Players improv comedy group and run with Dartmouth Endurance Racing Team (Dert).

## **Did anything surprise you about being a UGA?**

**Max:** Yeah—UGAs have a sticker on the back of their IDs that allows them to get free dessert at Morano Gelato if you bring your residents along. It wound up growing into this de facto social group. And I ended up becoming really good friends with the members of 'The Gelato Club.' I came to realize that even though you might live with people who don't share any of your interests, you can still find them pretty cool.

## **Clearly it was something that you enjoyed, since you're doing it for a second year.**

**Max:** I was super nervous at first! Last year I was a sophomore, and as a first-year UGA, I was just one year older than the residents I was advising, but it actually worked out great. I shared my own experiences and hoped they would learn from my mistakes. I helped my residents choose their next classes as I was choosing my own. I found I could give them incredibly up-to-date advice and advise them on things like declaring a major because

I'd just dealt with the same things myself. Also, it's a nice way to bond with underclassmen (I'll have the chance to get to know at least 30 of you who are reading this!)

## **Do your residents take your advice?**

**Max:** It's a two-way street—as I try to advise my residents, they continually give me new ideas and help me hone my own thinking. That's one of the things that makes the position so rewarding—and I love talking about classes I've taken and things I've loved at Dartmouth. If I can help someone else enjoy Dartmouth in the same way, that's pretty cool.

One of the residents I was closest to decided he wanted to apply to be a UGA, and I guided him through the process just as my first-year UGA had guided me. I'm hoping we'll keep passing the torch.

—Caroline Cook '21



# DEVIN SINGH

ASSISTANT PROFESSOR OF RELIGION

At a glance, Professor Devin Singh's life and work are woven from unlikely connections. Art, religion, economics, and even martial arts converge in his research and teaching. These interests—and the connections between them—piqued his curiosity from an early age. Having grown up in a multifaith, multinational family in Cameroon and Morocco, questions about cross-cultural and interreligious issues arose naturally for him: Why do people have certain ideas about God? What is the “good life”? What is ultimate meaning?

“I did my undergrad in a liberal arts context similar to Dartmouth's, very much open to exploring big questions of meaning and significance,” he says. Today, Professor Singh studies connections among religion, politics, and economics—particularly links between God and money. His most recent work focuses on how the language of debt has blended with ideas of guilt and sin in different religious traditions, and how it's been used to describe humans' relationships to deities. These connections, Professor Singh suggests, could account for the power of debt in modern society.

Much like his research, his classes draw from multiple disciplines, including his own personal interests like the visual arts, guitar, and kung fu. Creative expression, kinesthetic approaches, and interaction are all part of his teaching. Whether they're performing scenes from *The Merchant of Venice* that explore ideas of debt and lending or analyzing capitalism and commodification in Beyoncé lyrics (listen closely to “Irreplaceable”), Professor Singh's students engage broadly.

Classroom discussion encompasses everything that matters most to him about teaching: fostering and deepening a sense of empathy in his students. Dialogue and debate challenge us to inhabit perspectives that might not necessarily align with our own. “I've appreciated Dartmouth students' willingness to be down-to-earth, open, and transparent about their concerns,” he says. “They're willing to be real rather than maintaining a front of having everything together.”

Ten minutes into our conversation, Professor Singh offered me the same advice that shaped his own career: explore. “Maybe there's something in biology or astronomy that could be really interesting for you,” he told me (an English major), “so don't shut that out.” Committed to furthering a legacy of investigating what matters, he integrates the existential and the practical, the personal, the academic, and the esoteric into his teaching. He empowers his students to dig deep into what matters most to them and to find and forge their own enriching connections, however unlikely they may seem.

—Sofia Carbonell Realme '20







# Life Lessons

PHOTOGRAPH BY DON HAMERMAN

Pictured: In the Tower Room in  
Baker-Berry Library



Covering everything from glaciers to volcanic fields, geochemistry to topographic mapping, the Stretch is Dartmouth's off-campus earth sciences program that treks across western North America. It takes topics covered in class and spatializes them, empowering students to master field techniques while strengthening their understandings of the shaping of North America and the larger world.

Named for the immense swath of land covered in its eight-week trek, the Stretch is one of Dartmouth's oldest off-campus programs. Beginning in British Columbia and culminating in Flagstaff, Arizona, students get hands-on geological experience while seeing the Athabasca Glacier,

the Grand Canyon, and a slew of national parks, including Grand Teton, Yellowstone, and Zion. Each week entails a new area of study, and relevant faculty members are flown out to teach in the best possible geological classroom: the outdoors.

Although Katie Bogart '20 plans to major in engineering, she didn't find much trouble picking up a new skill set on the trip. "The professors do an incredible job of starting everyone at ground zero and mixing people who have experience in different fields." But the program isn't just about building new skills; it's also about community. "There were 22 students and not a lot of alone time. We lodged, did fieldwork, and ate dinner

with all the same people," says Berit DeGrandpre '20. Katie reminisces similarly: "I've never had an experience where people meshed together so well and so quickly. I have so much gratitude for the faculty and graduate students that put in the work to make the Stretch possible."

For Berit, "the Stretch brings together many of the best things I see in Dartmouth: small community building, great relationships with professors, and an intimacy with the outdoors." As Stretch students leave the West, they'll bring their nuanced geological understandings – along with the lifelong friendships they've developed – back to Hanover.

— Kaj Johnson '22



oh,  
the places  
you'll go!



**“You’re fully immersed in geology  
24/7. It’s the equivalent of language  
immersion in a foreign country.”**

**—Zach Berkow '20**

Students hike up the Athabasca  
Glacier in the Canadian Rockies  
to collect GPS data useful for  
measuring glacier velocity





PHOTOGRAPH BY DON HAMERMAN





# MARY FLANAGAN

SHERMAN FAIRCHILD DISTINGUISHED PROFESSOR  
IN DIGITAL HUMANITIES

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**MARY FLANAGAN HAS PRODUCED PIONEERING GAMES, MIND-EXPANDING PERFORMANCE ART, AND CRITICALLY ACCLAIMED ARTICLES AND BOOKS. THE EPICENTER OF ALL THIS WORK IS HER INTERDISCIPLINARY GAME RESEARCH LABORATORY TILTFactor, WHERE SHE AND HER TEAM CREATE GAMES THAT REINFORCE HUMANISTIC PRINCIPLES WHILE MAXIMIZING THE ELEMENT OF FUN. FLANAGAN WAS RECOGNIZED THIS YEAR WITH THE CLASS OF '64 OUTSTANDING LEADERSHIP AWARD FOR THE DEEP EXPERIENTIAL LEARNING AND SOCIAL CHANGE SHE MAKES POSSIBLE THROUGH TILTFactor.**

**You are melding so many frontiers as a game designer, a futurist, an educator, a scholar, a poet, and a writer. And you addressed the World Economic Forum this year, too. What did you talk about?**

My WEF talk was called “Game Changers: Playing Games for Good.” I talked about using games as vehicles for social and behavioral transformation. When people play, they feel free. They’re more open to rethinking assumptions and trying new things. My students learn about the power—and the ethics—of technology. And they’re learning how to use games to advance a cultural overhaul.

**We heard an interview you gave on NPR’s *Weekend Edition*. You were talking about the astonishing impact of your card game “Buffalo.”**

Yes, “Buffalo: The Name Dropping Game.” The idea is to shift people’s thinking about biases and stereotypes. After just 20 minutes of play, the study participants we observed scored better on a standard psychological test for tolerance. The goal is to create games that sway people toward positive social attitudes and behaviors but to be purposeful with a light touch. People don’t like to be told what to think.

**In the courses you teach and in your research lab Tiltfactor, your students get to create prototypes of games. What is it about the creation of games that makes it so powerful as a learning tool?**

Games are broadly interdisciplinary. They encompass computer science, psychology, sociology, music, art, neuroscience, and more. That’s what the liberal arts is all about. We teach our students to think across disciplines. They develop the ability to attack problems, ask productive questions, and invent fresh solutions. And they learn to be learners, because in the 21st century, the world—and the workplace—are changing at a meteoric rate. Sixty percent of the jobs out there now will alter significantly or vanish altogether. Dartmouth students leave here very much prepared for a high level of uncertainty.

**Your interest in games runs the gamut from technical invention to social intervention to scholarly investigation. You have a book in the works with a colleague at MIT—but also an exhibition of poems?**

Yes, an exhibition of poems—digital poems that computationally morph into new pieces of literature. The book that I’m working on with Mikael Jakobsson from MIT looks at how board games over the centuries shaped opinions that led to colonialism. They’re both—very different—works in progress.

**Your students often say they find your courses, your research, and your mentoring transformational. What is your teaching philosophy?**

To be effective, teachers must share their enthusiasm. When we’re inspired, we inspire others. It’s contagious. But more than that, Dartmouth is a special place. The students here are mature, creative thinkers. They’ve come here for intellectual exploration. We investigate things together, succeeding and failing and discovering together. I get to know them very well, and that matters.

**Congratulations on winning the Award of Distinction at the PrixArts Electronica in Austria. Tell us about the work you presented.**

The prize was for an art installation called *[Help Me Know the Truth]*. As visitors enter the gallery, they snap selfies in a small photo booth. After I apply noise algorithms to generate two slightly different versions of their faces, their images are then immediately viewable by exhibition-goers, who are tasked with matching photos with text labels. The exercise reveals unconscious responses to certain facial features. Do we rate certain faces more trustworthy than others, for example? The intent behind the work is to question how accurately computational neuroscience techniques can uncover the categorizing systems of the mind and whether they are subject to socially constructed fears and values. We don’t always know the answers, but uncertainty is an exciting invitation to look for them.





# Illuminating ✧ Manuscripts

Senior Fellows  
Shine Bold New Light









**“I believe strongly that racial and ethnic tensions around the world can be reduced by information. Information leads to understanding.” —*Lucayo Casillas '19***



A multimedia exploration of black women through poetry, theater, and fashion; a pharmaceutical experiment focused on growing an ibuprofen substitute in remote regions of the world; an investigation into Native American legal rights. These are just a few of the recent Senior Fellowship projects that have taken Dartmouth students all over the country and around the globe to explore a scholarly passion in-depth.

The Dartmouth Senior Fellowship Program (SFP) gives fourth-year students the opportunity to build on a topic in which they have developed a significant scholarly interest, a pursuit that may well shape their careers. The intellectual scope and breadth of a Senior Fellowship extends well beyond the existing curriculum and often requires travel, most of which is funded under the terms of the fellowship.

The projects of Lucayo Casillas '19 and Clara Chin '19, the two 2019 Senior Fellows, could not be more diverse, but they have one pivotal goal in common—they each want to set right a cultural wrong. For Clara, that means destigmatizing the open expression of emotion. “We have come to equate emotion with weakness and knowledge with strength,” Clara says, “as if they are opposites.”

In her SFP project “Dora’s Room: Digital Dreams,” Clara, an English major from Los Angeles, focuses on Freud’s most famous patient “Dora.” She examines the discrediting of emotion with a multimedia exploration that includes an exhibition at the Hop Garage with sound by Aaron Karp '19, a digital music student in Dartmouth’s Guarini School of Graduate and Advanced Study.

Freud diagnosed Dora (his pseudonym for her) as an hysteric harboring repressed sexual desires. With the exhibition, Clara wants to upend that diagnosis by documenting the life and dreams of a 21st-century Dora through the accoutrements of her room—artifacts that influence or represent her heightened emotional state. Those artifacts include movies that depict contemporary illustrations of hysteria, such as Brian De Palma’s *Carrie* and Julia Ducournau’s *Raw*. As part of the project, Clara also has produced an animation depicting

cyborg feminism to show that women exist, more and more, in a realm in which the lines between nature and technology are blurred.

A key element of the project is an accompanying monograph in which Clara uses the Dora case study as a vehicle for exploring the concept of feminine desire in works of art and literature. “I want to reveal the blind spots that exist in the focus of modern social feminism on empowerment, completely dismissing emotion.”

The idea for the project began to germinate in a psychology class in which the women students balked at Freud’s dismissal of Dora as an hysteric. Clara began to pull from other courses in a variety of disciplines to develop her theory. All along the way, she says, her professors took an interest in her thinking and helped her advance her ideas—even professors from her earliest days at Dartmouth. And the three faculty advisors working with her on the SFP—English professors Aden Evans and Alexander Chee and film and media studies professor Jodie Mack—helped her to find holes in her arguments and to bring rigor to her concepts. They also introduced her to books, movies, and other resources that would help her in rounding out her theories.

Clara says she pursued the SFP as much to test drive her future as an academic as to test drive her unorthodox ideas in a scholarly setting. “This experience allowed me to try on an academic career. I wanted to know what it would be like to do a big research project—and I wanted to know whether I would be able to do it,” Clara muses. “I resolved that if I didn’t enjoy the experience, I wouldn’t go into academia. What I have discovered is that I really love scholarship. Having a future as an academic doesn’t mean living in an ivory tower. I want to do work that is meaningful in the world, and I can see the way to do that.”

### **The root of the matter**

History major Lucayo Casillas has spent much of his four years at Dartmouth on an odyssey of investigation about an indigenous group that he considers long ignored and misunderstood—the Maroons. The Maroons were plantation slaves who escaped into the mountains when the British captured the island of Jamaica from the Spanish in 1655. Lucayo observes that the word



itself is a manifestation of racism; it derives from the Spanish word *cimarrón* meaning a domesticated beast that has reverted to a wild state.

"History has dismissed the Maroons as runaway slaves and never given much thought to what communities they might have formed afterward. Jamaica's Maroons in particular are renowned for their strong sense of community, which resulted in treaties with the British Empire that recognized their sovereignty. Historians, however, have not focused on Maroons from the indigenous point of view," he notes. Challenged by that paucity of interest and understanding, Lucayo set out to discover as much as he could about their life and history. "Studying Maroons," he says, "is a great way to look at the larger issues of class, race, and the clash of civilizations."

Lucayo's mother is Trinidadian, his father Chicano, and his aunt and uncle have strong Native American identities and were prominent scholar-activists in California. Often he was by their sides at ceremonies, lectures, and gatherings. That personal history has given him an appreciation for the precarious gift of heritage and a lifelong commitment to understanding and communicating the ramifications of roots.

Lucayo began his investigation into Maroon cultures with a Mellon Mays Fellowship from Dartmouth that allowed him to imbed himself in Maroon communities in Jamaica and Ghana. What he learned inspired him to put together a Senior Fellowship project that would allow him to travel back to those same communities and drill deeper into his research. "The Maroons in Jamaica and Ghana brought me into the heart of their clans," Lucayo says. "I was so privileged to have that access. I knew I was recording living history."

Lucayo has now spent several weeks in each country interviewing members of Maroon communities and building an understanding of their traditions. "I believe strongly that racial and ethnic tensions around the world can be reduced by information. Information leads to understanding. People need information about other people to develop an awareness and compassion for them and their challenges."

Lucayo's scholarly journey has not been confined to foreign soil. He has established strong connections to members of the faculty like his thesis advisor Colin Calloway—a professor whose research into Native American history he admired as a boy growing up in East Palo Alto, California. And he has been deeply involved in Native American activities on campus, once serving as the lead organizer of Dartmouth's annual powwow. He also has been active in the NAACP and helped organize a campus conversation with noted scholar, activist, and raconteur Cornell West.

As the culmination of his Senior Fellowship project, Lucayo is producing an extensive thesis that outlines his research and conclusions. He intends to pursue a graduate degree in African American history knowing that, with his Senior Fellowship experience, he has established some scholarly street cred.

"So much of what I've been able to do here at Dartmouth has been made possible by the D-Plan," Lucayo reflects. "It has given me the freedom to investigate areas of scholarly interest that would not fit into the confines of a traditional academic schedule. I have felt that I could be as mobile as I needed to be in my study of the Maroons and have had some amazing experiences as a result."

**"What I have discovered is that I really love scholarship. Having a future as an academic doesn't mean living in an ivory tower." —Clara Chin '19**







# EMMANUEL AKOSAH '19

MAJOR: ENGINEERING SCIENCES

HOMETOWN: KUMASI, GHANA

# & EUGENE SANTOS JR.

PROFESSOR OF ENGINEERING

EMMANUEL (MANNY) AKOSAH '19 AND ENGINEERING PROFESSOR EUGENE (GENE) SANTOS HAVE SPENT THE PAST YEAR WORKING TOGETHER TO DEVELOP MANNY'S UNDERSTANDING OF MACHINE LEARNING, A BRANCH OF ARTIFICIAL INTELLIGENCE THAT ALLOWS COMPUTERS TO ADAPT THEIR DECISIONS IN RESPONSE TO DATA. MANNY AND GENE SAT DOWN WITH 3D TO DISCUSS THEIR WORK AND THEIR HOPES FOR THE FUTURE.

## How did you two start working together?

**Gene:** Manny basically just popped into my office. He'd been doing some research in computer science and was getting more interested in deeper topics relating to artificial intelligence, so he sought me out. It showed a lot of initiative.

**Manny:** The first meeting we had was about how I should get started digging in to machine learning. The topic of natural language processing is so rich, we thought that would be a good place to start. I began during spring term and by the end, Gene asked me to present to some of his graduate students.

**Gene:** Manny got funding from the Undergraduate Advising and Research office to work full time over the summer. He spent it getting his hands dirty with the basic ideas. Now we're just letting the reins loose. There are so many directions he can go in with the knowledge he's developed so far; I think the floodgates will open up.

## What would opening up the floodgates look like?

**Gene:** Machine learning offers great tools, and you can probably already see how they've changed the world. Who would have thought a few years ago that using a facial recognition system to unlock your phone would be an everyday thing? It's more than just pattern recognition. We're looking at how language works. It's about understanding what the human mind is doing. It's about understanding human intelligence.

**Manny:** My goal is to extend the application of machine learning from just silly filters on our phones to virtually every industry on the planet. As we build more powerful models, we can apply them to tackle problems like climate change, space travel, world hunger. The way I see it, these problems have to be solved by full-scale systematic implementations.

**Gene:** I haven't said this to Manny yet, but I'm looking forward to hearing ten years down the line: "Did you know Manny Akosah?" And to be able to say: "Yeah, I actually advised him."

## What do you appreciate most about working together?

**Manny:** When I started getting interested in machine learning and began delving into it more deeply, I realized Gene's been in the field since before I was born.

**Gene:** You're making me feel way too old...

**Manny:** I can't tell you how much I value just being able to walk in and talk to him. Last week, one of my questions reminded him of an old problem, and he gave me papers he was working on in the '80s and '90s. I know that's a memory that's going to stick.

**Gene:** My favorite part about mentorship is generating new ideas. I find it enthralling to see a different point of view, especially when there's a really strong basis to the argument. Teaching and education is a two-way street—I live for these things. I'm just happy Manny tracked me down.





Pictured: In front  
of Thayer School of  
Engineering



# FINANCIAL AID

THE 3D TEAM SAT DOWN WITH DIRECTOR OF FINANCIAL AID GORDON “DINO” KOFF TO DECONSTRUCT A PIVOTAL ISSUE FACING PROSPECTIVE STUDENTS AND THEIR FAMILIES—FINANCIAL AID.

**Let's start with the elephant in the room. People are apprehensive about the financial aid process.**

Yes, and that is one mega elephant. It's not just financial aid that freaks people out. It's financial conversations in general. Taxes, savings, income, costs—financial aid involves all those scary topics.

**What do you do to take that anxiety down a notch?**

We offer folks a process that's as painless and user-friendly as we can make it. We walk people through the steps with an easy-to-follow checklist. Sometimes we Skype or FaceTime with them, if they need that support. We're also transparent about costs. “Dartmouth will cost this. That's the true cost. Nothing hidden.” Full transparency goes a long way toward reducing anxiety.

**Tell us something readers might not know about Dartmouth financial aid.**

Actually, I'll tell you three. First, we meet 100% of demonstrated need with need-based aid. Second, if a family's financial situation does not change, awards tend to increase from year to year as fees increase. The goal is no surprises. And third, we'll distribute a total of \$111 million dollars in aid this year, which is great for a school of our size.

**You often say that Dartmouth has an exceptional commitment to financial aid. What does that mean in real terms to students and their families?**

The Dartmouth administration and its alumni and philanthropic supporters all want the same thing that my team wants—to remove all barriers to the full Dartmouth experience. And when I say remove all barriers, I mean that financial aid covers off-campus programs like a term studying astronomy in South Africa or theater in London. Dartmouth even subsidizes expenses entailed with courses like alpine skiing or pre-orientation programs like white water-rafting. The richness of your Dartmouth experience should not depend on your bank account balance.

**You have a reputation as somebody who is always in a good mood.**

That's because I love my job. I love my job because I'm having fun. And I'm having fun because I see the outcomes of the support we give. I have seen so many students graduate from Dartmouth and go on to amazing careers. Financial aid makes it possible for so many to come here and have life-changing experiences. We see a very powerful cause and effect of the support we offer.

**If you have one message you'd like us to pass on to prospective students and their parents, what would it be?**


We are on YOUR team. Think of us as your cheer-leading squad. We really want, more than anything, to make a Dartmouth education work for you. We truly believe that your life will be better for it.


*In addition to its commitment to meet full demonstrated need for all undergraduate students, Dartmouth provides resources to ensure that all students have full access to the Dartmouth experience, regardless of their background.*

**\$50K+**  
Average grant is over \$50K

**50%**  
Percentage of Class of 2022 on financial aid


**\$111M**  
Amount given in scholarship aid for the 2019–20 year

  
Financial aid travels with you when you study abroad or off campus

  
Enrichment funds and resources are available for: First-Year Trips, PE classes, research, internships, & more

  
Students from 43 countries were offered financial aid in the last two years



A full-length portrait of a middle-aged man with a receding hairline, smiling at the camera. He is wearing a bright blue blazer over a light blue button-down shirt and a purple and green striped tie. His hands are in his pockets, and he is standing in front of a large, ornate wooden door with a decorative X-shaped window. To the right of the door is a light-colored stone wall. A black metal railing is visible in the bottom left corner.

“We really want, more  
than anything, to make a  
Dartmouth education  
work for you.”





# JULIA HUEBNER '20

MAJOR: HISTORY WITH A MINOR IN  
HUMAN-CENTERED DESIGN  
HOMETOWN: CHICAGO, IL

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"I want curious people at my school because I like learning from my peers, and I want kind people at my school because I like learning from my peers," says Julia Huebner '20, describing the two qualities she values most in the Dartmouth community. In doing so, she actually sketches a succinct portrait of herself. Julia's passionate curiosity has carried her through classes in more than 15 departments, an internship at the Federal Energy Regulatory Commission, and a pre-MBA crash course. Genuinely impressed by one of the professors who taught the course, Julia followed up with her. Their casual conversations morphed into a research project on the correlation between weather and customer satisfaction.

Originally, Julia arrived at Dartmouth excited about journalism: "For a long time, I wanted to be on the front page of *The New York Times*," she laughs. "But the more I wrote, the more I realized that this may not be what I want to do." Julia rechanneled her path towards an intriguing combination of design thinking and history. She discovered her passion for human-centered design during her freshman fall when she took ENGS12: Design Thinking. Two years later she was the lead TA for the course. "I became a big follower of design thinking from the get-go," she reflects. "The methodology, which integrates strategy, product design, consumer insights, and consumer psychology, is super interesting. It's interdisciplinary, and it can be applied to anything." Following a long process of trial and error, Julia picked history as a major for its nuanced account of human life and the attached political, economic, and social implications that center it around the human experience.

Though Julia appreciates the inquisitive, creative minds she's found at Dartmouth, it was the kindness she experienced while touring campus that drew her in. "Out of all the colleges I visited, Dartmouth stood out because the members of the community made the greatest effort to get to know me as a person," she remembers. A friend of a friend on campus, who was celebrating her 19th birthday, took Julia everywhere, including her own birthday party. Now a vibrant part of Dartmouth's community, Julia spreads kindness in her own way, often taking the time to write thank you notes to her professors.

Although diverse, the uniting threads of Julia's intellectual and social pursuits lie in her intense curiosity and her human-centered approach. Asked to briefly describe herself, Julia mentions mentee and mentor, strategist, thinker, and hiker. While these identities are representative of who she is, she leaves out the two that make her a valued community member: her own curiosity and kindness.

—Ioana Andrada Pantelimon '22



Pictured: Atop Mount  
Ascutney in Vermont,  
a short drive from  
Dartmouth

PHOTOGRAPH BY DON HAMERMAN





# Through a Human-Centered Lens





## GRAHAM SISSON '21

MAJOR: UNDECIDED  
HOMETOWN: MEMPHIS, TN

Like many first-year students, Graham Sisson '21 came to Dartmouth entirely unsure of his academic interests. When perusing the open houses of each department, he used the criteria of any student electing classes: "This class sounds intriguing, the department is fascinating, and the professor has an awesome beard," he laughs. "Let's do it."

Graham's openness to new things drew him from his small high school outside Memphis to Dartmouth, where his school size grew tenfold. "During orientation, it was somewhat overwhelming," Graham reflects. "But pretty quickly, I met people through classes and the clubs I'm involved with, and it started to feel really manageable." Graham's experience with First-Year Trips, Dartmouth's pre-orientation outdoor program, was a valuable starting point: "I absolutely loved my First-Year Trip and developed a solid group of friends during the experience. Now, when I walk across the Green, I know I'll see friends. You quickly get a feeling of home here."

That comfort gave Graham the confidence to explore broadly. After experimenting with courses in human-centered design and geography, he discovered environmental studies. "Every class in that department sounded interesting, and the outdoors have been a huge part of my upbringing," Graham says. During class, a lecture on ecological economics gave Graham a lightbulb moment. "Even though I didn't have a background in economics, talking with the lecturer afterward helped me realize I was super into that intersection. Environmental studies is such an interdisciplinary program, so I was really able to connect those two mindspaces."

Dartmouth's size, described by Graham as "not too big, not too small," empowered him to forge meaningful connections with his professors. "Dartmouth's focus on undergraduate teaching was a big deal for me. I knew that I would be able to foster the same quality of relationships that I'd had with my teachers back home." Graham's geography professor exemplifies this connection: "He's a leader in his field doing some really cool research, but he was also hilarious and fun to talk to. During office hours, he was happy to answer my questions beyond what would just help my grade."

Outside the classroom is a similar story. Between ultimate frisbee, Christian Union, and rock climbing, his eclectic pastimes allow him to engage deeply with many facets of Dartmouth's diverse student body. "It's not just people who look like me or who are from the same part of the world as me," he notes. "I get to experience an entirely new culture and environment." By expanding his worldview and engaging his passions, Graham is doing more than just experiencing Dartmouth's culture: he's shaping it.

—Kaj Johnson '22



# Frien

Pictured: In one of  
Dartmouth's indoor tracks,  
located in West Gym





# dly Terms





# CARLY TYMM '20

MAJOR: CHEMISTRY  
HOMETOWN: BELMONT, MA

# & KATHERINE MIRICA

ASSISTANT PROFESSOR OF CHEMISTRY

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**CARLY TYMM '20 AND HER MENTOR, AWARD-WINNING CHEMIST DR. KATHERINE MIRICA, TALK ABOUT THE WOMEN IN SCIENCE PROJECT (WISP) AND THE IMPORTANCE OF MENTORSHIP—NOT TO MENTION FUN—IN THEIR LAB.**

## How did you each find your way to chemistry?

**Katherine:** My mother is a chemist, so I was exposed to chemistry and its possibilities from an early age. It wasn't until I joined a materials chemistry lab in college, though, that I really became excited about research. Later, I was looking for a faculty position at a research institution with excellent resources—a place where students were truly excited about research and science. I also wanted to teach at a school that valued a liberal arts education, and that certainly influenced my decision to teach at Dartmouth.

**Carly:** I actually entered Dartmouth as a biomedical engineering major, but Dr. Mirica's intro chemistry course changed my mind. Chemistry is intriguing. One of my professors described it as "an ever decreasing series of lies." The idea really resonated with me: you're taught basic principles, then told, "that wasn't fully accurate; here's a more complicated explanation."

## What are you working on in your lab at the moment?

**Carly:** I would characterize my project as within the intersection of chemistry and engineering—we're using small molecules to create functional materials with interesting mechanical properties that have not yet been explored.

**Katherine:** My research group aims to make an impact on healthcare, but also on electronics that interface with healthcare and with daily life. The materials chemistry solutions we design are intended to ultimately make a positive impact, but we also want to learn about fundamental molecular design principles in our research. How do we design functional materials from molecular components with the targeted properties and the performance desired in a particular context?

**Carly:** Right now, we're looking at certain molecules to understand their adhesive properties and whether they can sublime. Looking at these molecules and being able to predict or explain the properties that we observe is really exciting. And there's a lot we could do with that knowledge.

**Katherine:** Carly has been a part of this project since its inception in my laboratory. To join a very new lab puts a young researcher like Carly in a unique position. Not only does she get to push the boundaries of science, she has the opportunity to really establish an area within the group that has the ability to grow and flourish. Future researchers can then build on that foundational work.

## Carly, you got involved in Dr. Mirica's lab through WISP, which has a major mentorship component. What's that been like?

**Carly:** Dr. Mirica and the graduate students I work with right now have been great mentors. Having Dr. Mirica always there and supportive of my project—especially in the beginning—has been really valuable.

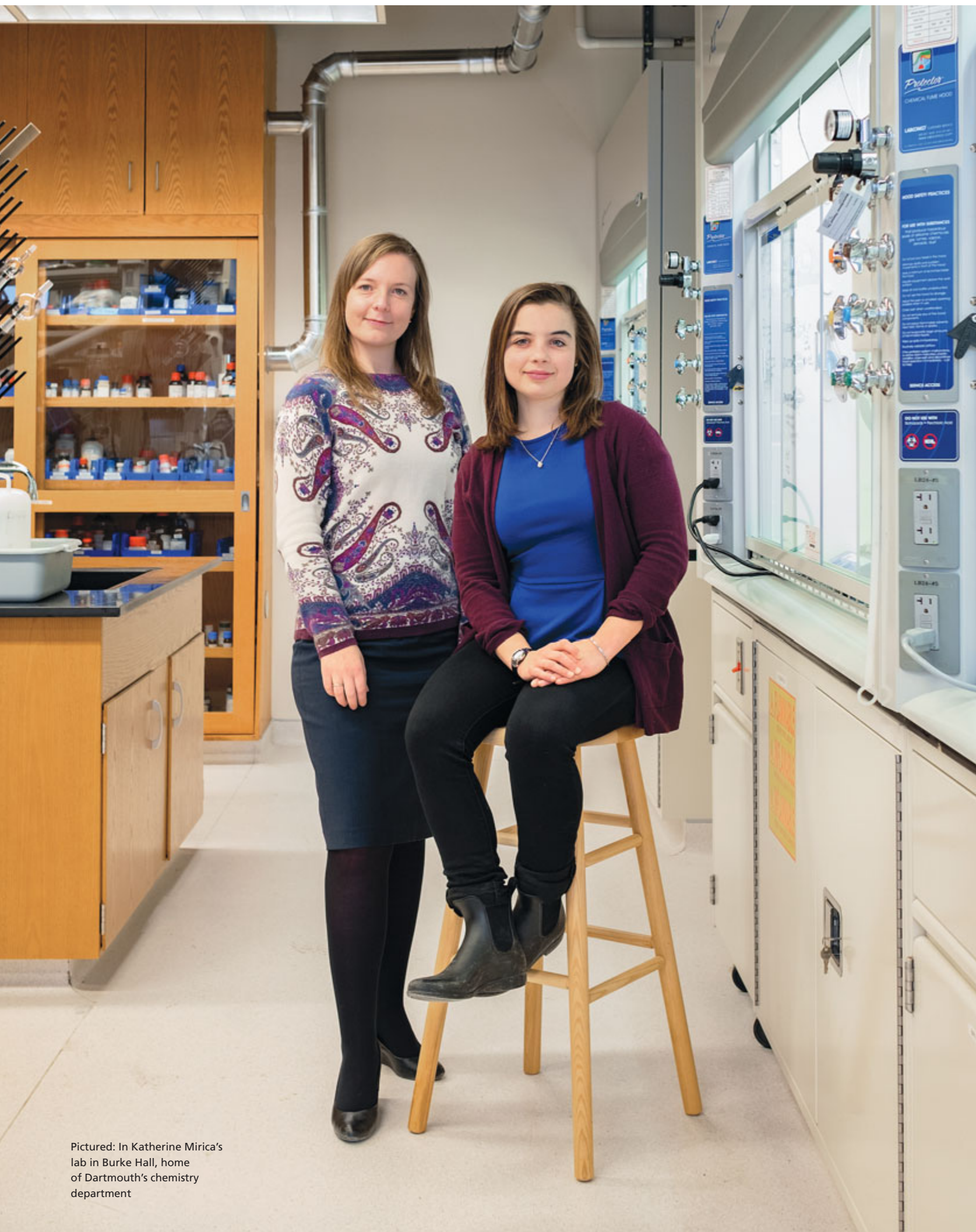
**Katherine:** The experienced graduate students who work full time in the lab can help undergraduates get up to speed, avoid making certain mistakes, and learn skills relatively quickly so that they can collaborate meaningfully. I also think it's really important for professional growth to have a preview of what exists beyond an undergraduate degree—that you could not only apply the knowledge of chemistry or engineering, but take an active role in advancing the frontier of scientific knowledge.

## You've cultivated a strong community within your lab. How do you keep that going?

**Carly:** One of the best things about my research is our lab environment. It just makes me happy to walk in the door. I've gotten to know everyone. It's become a space where I can relax.

**Katherine:** My goal always is to cultivate an inclusive, dynamic environment where people are committed to excellence, but don't lose sight of the fact that science is fun!





Pictured: In Katherine Mirica's lab in Burke Hall, home of Dartmouth's chemistry department





BAKER

3



# Courses of Study

**The liberal arts shape the Dartmouth experience, creating an academic culture imbued with critical thinking and creativity. One that promotes experimentation, reflection, learning, and leadership. A curriculum where poetry and neuroscience are natural partners and collaboration across disciplines happens organically. A course of study without boundaries. Forget the intellectual lines people draw. You won't find them here.**

African and African American Studies  
Ancient History  
Anthropology  
Applied Mathematics for Biological and Social Sciences <sup>m</sup>  
Applied Mathematics for Physical and Engineering Sciences <sup>m</sup>  
Art History  
Asian Societies, Cultures and Languages  
Astronomy  
Biological Chemistry <sup>M</sup>  
Biology  
Biomedical Engineering Sciences <sup>M</sup>  
Biophysical Chemistry <sup>M</sup>  
Chemistry  
Classical Archaeology  
Classical Languages and Literatures  
Classical Studies  
Cognitive Science <sup>M</sup>  
Comparative Literature <sup>M</sup>  
Complex Systems <sup>m</sup>  
Computational Methods <sup>m</sup>  
Computer Science  
Digital Arts <sup>m</sup>

**In addition to these extensive courses of study, Dartmouth undergrads have access to offerings across graduate programs as well. From courses at the Tuck School of Business to research with Geisel School of Medicine professors at Dartmouth-Hitchcock Medical Center, all of Dartmouth is at your fingertips.**

Earth Sciences  
Economics  
Education <sup>m</sup>  
Engineering Physics <sup>M</sup>  
Engineering Sciences  
English  
Environmental Earth Sciences  
Environmental Science <sup>m</sup>  
Environmental Studies  
Film and Media Studies  
French  
French Studies <sup>M</sup>  
Geography  
German Studies  
Global Health <sup>m</sup>  
Government  
History  
Human-Centered Design <sup>m</sup>  
International Studies <sup>m</sup>  
Italian  
Italian Studies <sup>M</sup>  
Jewish Studies <sup>m</sup>  
Latin American, Latino and Caribbean Studies  
Linguistics  
Markets, Management, and the Economy <sup>m</sup>  
Materials Science <sup>m</sup>  
Mathematical Biology <sup>m</sup>  
Mathematical Finance <sup>m</sup>  
Mathematical Logic <sup>m</sup>  
Mathematical Physics <sup>m</sup>  
Mathematical Data Science <sup>M</sup>  
Mathematics  
Medieval and Renaissance Studies <sup>m</sup>  
Middle Eastern Studies  
Music  
Native American Studies  
Neuroscience  
Operations Research <sup>m</sup>  
Philosophy

Portuguese (Lusophone Studies)  
Physics  
Psychology  
Public Policy <sup>m</sup>  
Quantitative Social Science  
Religion  
Romance Languages <sup>M</sup>  
Romance Studies <sup>M</sup>  
Russian  
Russian Area Studies  
Social Inequalities <sup>m</sup>  
Sociology  
Spanish (Hispanic Studies)  
Statistics <sup>m</sup>  
Studio Art  
Sustainability <sup>m</sup>  
Theater  
Urban Studies <sup>m</sup>  
Women's, Gender, and Sexuality Studies  
<sup>m</sup> = minor only  
<sup>M</sup> = major only

**Can't decide what to study? It's not uncommon for Dartmouth students to double major or modify their major. A modified major consists of 10 courses, six in one field and four in a second—or even third—field. For example, you could modify your biology major with anthropology, public policy, or mathematics, among others.**

**Financial aid can be confusing. We're working to make it less so.**



The MyinTuition Quick College Cost Estimator asks only six questions to provide an early estimate of what a year at Dartmouth could cost for your family. Go to [dartgo.org/quickcost](http://dartgo.org/quickcost) to get help anticipating your college costs.





## HANOVER VALE '20

MAJOR: GEOGRAPHY, MINOR IN  
ENGINEERING SCIENCES  
HOMETOWN: WILMINGTON, MA

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Hanover “Han” Vale ‘20 proves that at least *some* college students can cook. After high school, she worked at a high-end restaurant and deferred enrolling at Dartmouth to attend Tante Marie, a culinary institution outside London that mixes a French focus with sessions on international cuisines.

The intercultural experience reflected Han’s culinary philosophy. “I don’t have a favorite cuisine,” she says. “I cook whatever I feel at the time. My grandmother is from the Philippines, so I still find it comforting to cook adobo or other Filipino dishes. But for the most part, I respect the merits of all cuisines. I love a good deli sandwich for the road.”

Tante Marie sharpened Han’s knife skills and her curiosity, too. “What does it mean to be using so much butter, so much red meat, so much salt?” she wondered. “What are the implications of these ingredients, both for the environment that produces them and the populace that consumes them?” Han has found answers to these questions—but also more questions—in her classes, library trips, and coffee dates with professors at Dartmouth. “If you’re curious about something here, you have all the agency in the world to find answers independently,” she says. From books on sustainable fisheries and indigenous seed-saving to classes in resource management, equitable resource distribution, and food insecurity, Han pursues topics fundamental to her mission.

Outside of class, she explores ideas more casually. She founded the Thirdspace Project to combine food systems, sustainability, and fine dining in an accessible way. Students discuss topics like the local food movement: how it’s defined, whether it’s accessible or imaginary, and how it impacts their own lives. They do so over dishes like beets with apple cider vinegar or maple dill white bean puree on sprouternickel—all made by Han. The meals are high-end, but the conversations are universal. “Fine dining feeds only individuals who can afford it,” Han says, “but everybody deserves a great, out-of-the-ordinary meal.”

This fall, Han will travel to Kosovo with the United Nations to study post-conflict food infrastructure. During winter break, thanks to a Mellon Mays fellowship, she will visit the Philippines to start her thesis research on the Green Revolution’s impact on Filipino cuisine—and how that change in cuisine affected culture and health. No matter what she discovers there, one detail is certain. “My culinary education isn’t over,” she says. “It’s just begun.”

—Sarah Lehan ‘20



# Food





# for Thought

PHOTOGRAPH BY DON HAMERMAN

Pictured: In the kitchen at  
Dartmouth's newly renovated  
Moosilauke Ravine Lodge



# THREADS:

A PAGE FROM  
THE DARTMOUTH STORY







## The Zen of Sophomore Summer

Sometime after midnight, sixteen of us drifted down the Connecticut River. Earlier that hour, we had dispersed at a party, but a single word spread like peach-colored clouds across sunset skies. “Paddling,” someone whispered. “Moonlight paddling.” We hastily convened and dashed across campus. We launched two canoes, navigating by moonlight to an island with a rope swing that is a magnet for students during the day. We slid slowly with the current, and everyone sat awestruck. Someone howled at the moon.

That moment is one of my favorites from my sophomore summer. But it is only one. I stargazed on the Hanover golf course and slapped mosquitoes during outdoor Shakespeare. I watched fireworks from Mount Moosilauke’s summit and roasted marshmallows at its base. I read and wrote and ran and hiked and climbed and studied. Others sang a cappella and did improv comedy. I learned about the Russian Empire and wrote an oral history paper on my great-grandmother’s immigration. The Dartmouth Outing Club ended the term with a dinner dance (the theme: “Zombie High School Musical”). My history seminar concluded with dinner and presentations at our professor’s house, capped by mint tea straight from her garden.

With September, with October, those moments drifted. But I build on the skills those summer months cultivated, the exhilarations those ten weeks sparked. I’m writing a second oral history paper with my seminar professor. My Russian history professor might come climbing next week. Soon enough, another summer will come. I am so excited for this year’s sophomores to enjoy it.

—Sarah Lehan '20

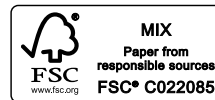
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