CBS DEAN VALERY FORBES WANTS TO POSITION CBS TO CONTRIBUTE IN A BIG WAY TO SOLVING GRAND CHALLENGES.
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BIO

STEPHANIE XENOS Editor | ALI KLUNICK Graphic Design | A FRAME FORWARD PHOTOGRAPHY Cover Photography
KATIE HOFFMAN and LANCE JANSSEN Production Assistants | UNIVERSITY PRINTING SERVICES Printing

BIO is published annually by the College of Biological Sciences for donors, alumni and friends.
To change your address or request an alternative format, contact Jean Marie Lindquist at lindquist@umn.edu or 612-625-7705.

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**Following Her Heart**

CBS undergraduate Akila Pai is forging a unique path to a career in medicine.
Over the past few months, we asked the CBS community to tell us what the college means to them using #CBS50 in recognition of the college’s 50th anniversary. Here are a few of the faces you will see online on the college’s Facebook page.

“CBS means I have the ability to be a woman in science and conduct research in one of the best biology-only colleges in one of the best universities in the entire world.” – KATIE MORRIS

“Having a college solely devoted to the biological sciences has fostered a community of people with a common interest but diverse backgrounds that I love being a part of.” – PRIYA TEKRIWAL

“Being in CBS means that I can see good friends in every single class, and look forward to seeing new friends in future classes.” – TIM ISDAHL
This is my first fall in Minnesota and I truly enjoyed the fantastic autumn colors during my daily runs along the Mississippi River and the beautiful sunsets that lit up the reflective exteriors of the Weisman Art Museum and Bruininks Hall. I watched the ivy growing outside my window in Snyder Hall go from green to an impressive burst of gold, orange and red to brown.

Fall may be fleeting in the north, but I know many warm memories will remain for those who joined us at the Bell Museum for the college’s 50th anniversary on a picture-perfect autumn evening in early October. It was a wonderful celebration of CBS and a festive time to bring together old colleagues and new. Lightning science talks by some of our most highly accomplished researchers and a sing-along of Hail! Minnesota led by Emeritus Professor John S. Anderson made the evening all the more lively.

As the new dean of a college with such an abundant sense of community and shared history, giving a keynote that could capture the full significance of this milestone felt like a tall order. But as I reflected on the history of the college, some common threads emerged. While there have been many discoveries, many innovations and many milestones in the five decades since CBS launched, what unites the college — from first-year students to established investigators — is a shared drive to discover and make the world better using biology.

I have only been here a short time, but I consider myself most fortunate to be part of this curiosity-driven community poised for another 50-plus years of academic and research excellence.

“What unites the college — from first-year students to established investigators — is a shared drive to discover and a desire to make the world better using biology.”

Valery Forbes
Dean, College of Biological Sciences
DIFFERENCE BETWEEN HEMP AND MARIJUANA PINPOINTED
New Phytologist

A matter of speculation until now, plant biologist George Weiblen identified the genetic difference between hemp and marijuana. Weiblen and colleagues discovered a single gene distinguishing the Cannabis species. “Hemp is a plant of major economic importance that is very poorly understood scientifically,” says Weiblen. “With this study, we have indisputable evidence for a genetic basis of differences among Cannabis varieties further challenging the position that all Cannabis should be regulated as a drug.” Since 1970, the federal government has classified all Cannabis plants as controlled substances. Nearly half of all states, including Minnesota, now define hemp as distinct from marijuana.

A LION-SIZE CALL FOR INCREASED CONSERVATION
Proceedings of the National Academy of Sciences

If nothing is done to boost conservation efforts, lion populations in west and central Africa are likely to decline precipitously in coming decades, according to a new study co-authored by Craig Packer. The analysis showed that most lion populations in Africa are in decline with the exception of four southern countries: Botswana, Namibia, South Africa and Zimbabwe. “Estimating future population trends requires sophisticated forecasting techniques, and we performed one of the most comprehensive statistical analyses of conservation status over such a large scale,” says Packer. “The results clearly indicate the need for immediate action across most of Africa.”

A TANGLED TALE OF TROPICAL FOREST CARBON STORAGE
Proceedings of the National Academy of Sciences

Lianas, a type of woody vine, add a surprising variable to tropical forest carbon storage, according to a study led by ecologist Jennifer Powers. Lianas dramatically reduce carbon sequestration by crowding out and killing trees. Powers and her research team found that study plots with lianas accumulated 76 percent less biomass over the experimental period due to reduced tree growth and increased tree death. Extrapolating the results to tropical forests as a whole, Powers calculated that lianas could potentially reduce long-term storage of carbon in tropical forests by one-third or more. “This study clearly demonstrates that we can no longer ignore lianas when thinking about tropical forest carbon cycles,” Powers says.

COLORECTAL CANCER CLUES BURIED IN BACTERIAL GENES
Genome Medicine

A study led by population geneticist Ran Blekhman, in collaboration with University of Minnesota colleagues, identified a telltale link between colorectal cancer and specific traits of bacteria found in the digestive tract. The researchers found that certain bacterial genes — those that code for traits that enable bacteria to invade another organism and establish themselves there — were more common near tumors than in other parts of patients’ colons. “What this tells us is that there might be an effect of these bacteria on cancer,” Blekhman says. The finding suggests that bacteria play a role in tumor formation or growth, an insight that could boost efforts to prevent and treat colorectal cancer.
“Insects seem like they do everything that people do,” says Marlene Zuk, a professor in the Department of Ecology, Evolution, and Behavior. “They meet, they mate, they fight, they break up. And they do so with what looks like love and animosity. But what drives their behaviors is really different than what drives our own, and that difference can be really illuminating.”

Zuk riffs on the odd and assumption-upending realm of insect behavior in an entertaining and enlightening TEDWomen talk.

Watch @ z.umn.edu/zuktedtalk
A Climate for Collaboration

A CBS-based global ecology research network expands its footprint and capacity to address critical questions relating to climate variability.

The Nutrient Network is on a roll. The research collaborative, launched in 2006 by CBS researchers Elizabeth Borer and Eric Seabloom, originally included about two dozen grassland sites. A handful of researchers were involved in the grassroots effort. By 2016, Borer and Seabloom anticipate the network will encompass nearly 100 sites in 21 countries on six continents. That exponential growth is matched by the growing number of papers published each year (eight in 2015 alone) and the increasingly valuable and extensive body of data collected at the sites over time.

Because researchers affiliated with the network adhere to a single methodology for collecting data, they can compare how changes in sites around the world are affected by local climate and climate variability.

“Climate change is predicted to impact regions around the world differently,” says Borer. “Access to data collected across regions using the same methods over time will allow us to better predict the effects of climate variability.”

- STEPHANIE XENOS
Can biodiversity help protect ecosystems from extreme conditions? That question is much on the minds of scientists and policy makers as a changing climate brings greater unpredictability. A study of 46 grasslands in North America and Europe led by Forest Isbell points to a promising answer: Increasing plant diversity decreases the extent to which extremely wet or dry conditions disrupt grassland productivity.

“We’ve long known that biodiversity has a stabilizing effect on productivity over time. But we haven’t been quite sure whether that’s during extreme events, after them, or both,” says Isbell, an adjunct faculty member in the Department of Ecology, Evolution and Behavior and associate director of Cedar Creek Ecosystem Science Reserve, one of the study sites. “This research shows that diverse communities are more stable because they exhibit resistance during extreme climate events.”

The study, published in the journal Nature, involved more than three dozen researchers at 46 study sites in nine countries. Isbell and colleagues found that the higher the plant biodiversity, the lower the variability in productivity during wet or dry climate events. Overall, productivity of communities with only one or two species changed an average of 50 percent during events, while those with 16 to 32 species changed only half that much. Biodiversity did not, however, seem to strongly influence how quickly a site returned to normal productivity after wet or dry events.

“Many of us were expecting that biodiversity would often promote both resistance during climate events and resilience after climate events,” says Isbell. Instead, resistance to change clearly trumped resilience as the main mechanism by which biodiversity helps to preserve ecosystem stability in times of change. The findings take researchers a step closer to understanding the role of biodiversity in helping nature weather the storms it faces.

- MARY HOFF

Photo: Jonathan Pavlica

The Biodiversity Buffer

A new study finds biodiversity helps grasslands resist the effects of excessive wet or dry conditions.
BRAIN trust

Daniel Schmidt and Mark Thomas receive $1.1 million in NIH support to develop innovative new neurotechnologies.

As we enter the 21st century, scientists around the world are being challenged to understand the inner workings of the mind in greater detail. That’s why — with endorsement from the White House — the National Institutes of Health (NIH) launched the BRAIN Initiative in 2014.

Over a 12-year period, this bold initiative allocated billions of dollars for the development of innovative neurotechnologies. This year, the U of M received a slice of that funding when CBS researcher Daniel Schmidt and Medical School colleague Mark Thomas received a BRAIN award to advance new viral gene-delivery techniques.

While it’s no secret that the neurosciences have been experiencing a major growth spurt, researchers remain stumped by the exquisite complexity of neural architecture and the fundamental biology that underlies many neurological disorders.

To truly understand how the brain works, researchers need high-precision tools to investigate each of its tiniest parts — from individual cell types to discrete neural structures.

Currently, the viruses deployed for genetic manipulations have an impact on large swathes of tissue — a major headache for researchers everywhere. Schmidt hopes to invent a new class of virus that targets only specific types of neurons or brain regions rather than infiltrating the entire brain. Working closely with Thomas, Schmidt will test his viral delivery system in vivo to see if it works as planned.

Schmidt’s technique could readily translate from the field of neuroscience to many other fields in biology and medicine. It’s an exciting opportunity to push past prior limitations and achieve a new state of the art.

“Viruses are under active clinical development for gene therapy, and there is a great need for more precise targeting mechanisms that increase safety and efficacy, especially with respect to targeting specific sets of cells in the brain.”

– DANIEL SCHMIDT

– COLLEEN SMITH
A REAL-WORLD EDUCATION

CBS faculty join University-wide initiative to empower students to tackle some of the world’s most pressing problems.

“I really want to show students science in action. I want them to understand how we ask questions and then how we find answers to those questions so they can do that themselves.”

— DAVID TILMAN

Regents Professor David Tilman explains it plainly. While co-leading a lecture for his course “Can We Feed the World Without Destroying It?” he does not pretend to have a simple, fix-all solution to the problems of food security, a growing global population and future food production.

“None of these solutions are easy and simple,” Tilman said to a room of undergraduates during one of the first classes of the semester. “If they were, they would have already happened. But they’re incredibly important, so having people who care about food think about this is exactly what we need to address these problems.”

Welcome to the Grand Challenges Curriculum, the University of Minnesota’s new effort to create interdisciplinary courses that prepare students to tackle complex real-world problems. CBS faculty are joining peers across the university to co-teach classes ranging in topic from global health to climate change.

Clarence Lehman, an associate dean and adjunct member of the Ecology, Evolution and Behavior faculty, will co-teach a Grand Challenges course this spring. He already sees the impact of this cooperative approach. “I know for sure that when you have co-instruction by faculty across colleges — and I’ve already seen it in a pilot for my own course — it generates new ideas that you didn’t have before,” he says.

Lehman and Tilman aren’t the only CBS faculty diving into the new curriculum. This spring, Associate Professor Jennifer Powers will co-teach a course on climate change and professors Sarah Hobbie and Stephen Polasky will co-teach a course on the policy and science of global environmental change.

Back in class, Tilman hopes the approach will inspire students to act. “I really want to show students science in action,” he says. “I want them to understand how we ask questions and then how we find answers to those questions so they can do that themselves.”

For students in Tilman’s course, this includes completing a semester-long project to help advance food security at a local level. “I want them to go and find something that they love and change the world with it.”

— LANCE JANSSEN
The mission of the college is to improve human welfare and global conditions by advancing knowledge of the mechanisms of life through breakthrough discoveries and prepare today's students to create the biology of tomorrow.
A quick scan of the latest news headlines provides ample evidence that humanity faces some daunting challenges. The need for renewable energy sources, reliable food supplies, clean water, cures for diseases and protection of biodiversity rub up against climate change, political conflict and a growing world population. While the issues are complex and require cross-disciplinary approaches, the biological sciences sit squarely at the intersection between understanding these problems and devising ways to address them.

“All of the challenges we face as a society involve biology,” says College of Biological Sciences Dean Valery Forbes. “Understanding how living systems work at all levels is critical for managing our planet’s future.” With the advent of new ways to collect and analyze mind-boggling amounts of information about the living world, the potential to understand the mechanisms that underpin climate, disease, ecosystem function and more has never been greater. For Forbes, making a leap in innovation means thinking beyond geographic and disciplinary boundaries — and that starts in classrooms and labs right here on campus.

“Even more than previous generations of biologists, the students here today will need and want to collaborate within and across disciplinary and international borders,” Forbes says.

Forbes’ own background could serve as a case study. Her research, which focuses on ecotoxicology and ecological risk assessment, intersects with multiple disciplines including chemistry, computer science, mathematics and social science.

The biological sciences have a critical role to play in addressing threats to the environment and health. Dean Valery Forbes wants to position the college to contribute in a big way.

She spent many years as a member of the faculty and an academic leader at Roskilde University in Denmark building connections with researchers across the continent and around the world.

At Roskilde, she led a large department, collegiate in size and scope, that brought together a wide range of disciplines across the natural and social sciences. She also served as a member of the Danish Natural Sciences Research Council.

“The European Union has made huge strides in facilitating collaborations across national boundaries,” says Forbes. “These efforts have had an amazingly positive effect on European research, my own included.” While at Roskilde, Forbes participated in large multi-institutional and multi-country research projects that, she says, allowed her to do much better...
往来，数学、统计和计算机科学，”福布斯说。 “但这还不够。我们需要与政策制定者、行业、NGO和普通民众等广泛接触 — 包括社会和行为科学 — 以便科学能够在决策中发挥作用。”

福布斯已经开始计划启动合作能力，引入CBS生物学博士后项目。该项目与明尼苏达大学的“大学挑战”倡议项目相联系。大学正在识别一系列社会和环境问题，以汇聚主导不同学科的领先专家，寻找解决方案，并通过课程融入跨学科方法。

“博士后研究员有独立研究的经验，但仍在职业发展的早期阶段，”福布斯说。 “他们处于一个可以探索新领域、结合不同学科专业知识、方法和途径的黄金时期，在不同的学科领域进行协作。”

福布斯还计划在接下来的几年里，继续加强学院与学院、明尼苏达大学的其他学院，以及国内外的私人和公共机构之间的联系。 “有很多机会与工业和政府机构发展合作关系，”福布斯说。 “我愿意帮助CBS拥抱这样的机会。”

福布斯今年早些时候来到CBS，当时学院刚刚庆祝成立50周年。在这50年间，明尼苏达大学的生物科学从分散的部门发展成为生命科学研究、教学和外展的核心枢纽。与此同时，生物学科目也经历了自己的转变，伴随着人类基因组的测序和强大的新方法和技术用于获取和分析数据。在这一背景下，福布斯领导学院进入一个标志着我们不仅能够理解，而且能够塑造我们周围世界的迅速扩展的科学能力的时代。

“我在这个历史的时刻来到这里，我非常兴奋。作为生物学家，我们有责任教授未来的科学家，做我们的核心任务，即基本研究，并跨越学科边界的可持续解决方案。未来50年将同样充满事件。”

— STEPHANIE XENOS

“比以往任何一代生物学家都更需要和想要在不同的学科和国际边界内进行合作。”

— VALERY FORBES

科学比她作为单个研究员时能做的要多。

她后来搬到内布拉斯加大学林肯分校，在那里她倡导跨学科研究和教学，并强调学校生物学科目之间的紧密联系，并扩展与定量学科的合作。

但不仅仅是接触到其他学科。福布斯强调了在生物科学内部进行合作的必要性。生物学家从分子和细胞水平到群体和社区动态的各个层次上被呼吁做出定量预测，这可以帮助预防或减少疾病传播的影响，消除有毒化学品对人类健康和环境的影响，并提高人类寿命和生活质量。

“需要一个更显而易见的机制，过程为基础的建模，这可以让我们在时间和空间尺度上做一些我们不能只用实际原因做实验的工作，”福布斯说。

以气候变化为例。 “我们必须理解正在发生的物理、化学和生物学现象，然后将这些现象转化为可靠的预测。”

“博士后研究员有独立研究的经验，但仍然在职业生涯的早期阶段，”福布斯说。 “他们处于一个可以探索新区域，将不同领域的专业知识、方法和途径结合在一起，并通过课程融入跨学科方法的时代。”

— STEPHANIE XENOS
A Plant-astic Plan

A new CBS Conservatory would expand access to a unique collection of rare and endangered plants.

There’s one place on campus where it’s possible to travel the world right in a single building, surrounded by exotic greenery from some of the most beautiful places on earth. Conservatory curator Lisa Aston Philander understands the allure of the collection well. She worked at the Conservatory as an undergraduate and returned this summer to run the place that nurtured her early love of plants. “This place is magic,” she says.

The conservatory’s collection — one of the most diverse in the region — contains more than 1,200 species of plants, including rare, endangered and invasive species. There are plants with developing economic potential and clones of original genome sequenced accessions. “Some of these plants will blow your mind,” says plant biology department head Gary Muehlbauer.

But that impressive collection is housed in a building that has fallen into severe disrepair, with structural problems and a crumbling foundation. It may be a greenhouse, but the existing CBS Conservatory building is anything but green. “The building is one of the biggest energy drains on campus,” Muehlbauer says. “Inefficient systems make it difficult to keep some of the rooms at the temperature they require, especially during the coldest months. It’s falling apart,” says Muehlbauer. “We’ve done all that’s possible to repair the building, but it’s time for us to have a new structure.”

Muehlbauer is hoping that a solution will arrive from the Minnesota legislature this spring. Funding for a new facility is under consideration during the upcoming legislative session. If funding does emerge, he hopes to be able to spread the word that this incredible resource is open to the public. “It’s important for everyone to have the opportunity to experience the diversity of plants from all over the world.”

- JULIE KENDRICK

Photo: Josh Kohanek

Lisa Aston Philander in the desert biome.
These CBS alums are convinced that a single science can’t solve today’s problems, which is why they’re drawing on their background in biological sciences and reaching beyond the boundaries of biology, too.

Ryan Lesniewski
Chief Scientist and Cofounder, Radix AgroSystems

After traveling to Southern California to pursue a graduate degree in marine biology and biological oceanography, Ryan Lesniewski (B.S. Biochemistry | Genetics, Cell Biology and Development ‘08) began to find that, as much as he loved the ocean, he felt a greater affinity with what happened back on dry land. “Sustainable agriculture became my passion, so I took a leave of absence from the program at USC and started my own business,” he says. While he will graduate this fall with his master’s degree, he has no plans to leave Radix AgroSystems, which consults with farms in the San Diego area. Along with partner Matthew Hively, he develops methods, systems and technologies for controlled-environment organic agriculture, and then helps farmers with implementation.

“Many of the world’s current problems are very complex, so you can’t just use a single science or skill to solve them,” Lesniewski says. He’s already working on innovative solutions. “We recently filed a provisional patent for technology that produces biofertilizer, which is a combination of organic nutrients and soil microbiology.”
George Chao
Ph.D. candidate, Harvard-MIT Health Sciences and Technology program

“The work I’m doing now is the very definition of cross disciplinary,” says George Chao (B.S. Genetics, Cell Biology and Development | Computer Science ’13). “I’ve been learning about clinical medicine topics like pathology and immunology, and I’ve been meeting patients and shadowing doctors. But I’m simultaneously taking stringent engineering coursework.” The two-school collaboration is one of the oldest and largest biomedical engineering and physician-scientist training programs in the United States.

Chao currently works in the genetics lab of Dr. George Church genetics. “We’re focusing on next-gen sequencing, using quantitative whole genome and proteome methods to guide computational modeling of regulatory and enzymatic networks in microbes and mammalian cells,” Chao says.

“A lot of scientists discover very early in their careers that their single discipline doesn’t answer all the questions. I like the elegance of genetics — it’s the language of life. And I’m finding that the boundaries between sub-fields within biology are blurring more all the time.”

- JULIE KENDRICK

Yung-Tsi Bolon
Product Owner, Genomic Services, Be The Match

With undergraduate degrees in linguistics and French, Yung-Tsi Bolon (Ph.D., Biochemistry, Molecular Biology, Biophysics ’09) is enthusiastic about the benefits of thinking — and working — cross-functionally.

“It’s important to explore as much as possible and get different perspectives through traveling, talking with others and getting out of your comfort zone,” she says. Yung-Tsi is a product owner at Be The Match, an organization operated by the National Marrow Donor Program®, which manages the largest and most diverse marrow registry in the world. Her organization helps arrange marrow transplants from unrelated volunteer donors to patients with leukemia, lymphoma, aplastic anemia and other diseases.

“We examine genetic typing that comes in through our registry,” she says. “I coordinate among all stakeholders, getting customer feedback, managing external products and working with internal teams in roles that include technical leads, software engineers, quality analysts, operations and laboratory services.

“A lot of what I’m doing is futuristic,” says Bolon. “We’re looking beyond what factors are important for matches today, and considering what factors might matter most in the future.”
1) Dean Valery Forbes made her first visit to Itasca Biological Station and Laboratories, and the headwaters of the Mississippi River earlier this fall. 2) Five University of Minnesota Regents toured the Itasca campus center with Dean Forbes in October. 3) Students hammed it up at the Itasca-themed photo booth during the college’s 50th anniversary celebration at the Bell Museum this fall. 4) CBS graduate students from the Market Science education outreach group engaged guests at the Bell event. 5) CBS supporters Darby and Geri Nelson talk with Robert and Roberta Megard at the 2015 CBS Donor Recognition and Appreciation Dinner. 6) Professor Emeritus John S. Anderson leads the audience in Hail! Minnesota at the college’s 50th anniversary celebration. 7) A scholarship recipient and her family at the recognition dinner. 8) A view of Memorial Hall during the dinner. 9) Dean Forbes speaking during the recognition dinner program.
The College of Biological Sciences attracts some of the University’s top undergraduates. Our students are among the most qualified and highest achieving with the stellar ACT scores and class rank to prove it. In just the past five years, eight CBS students received the Goldwater Scholarship — the most prestigious undergraduate award in the sciences — and four CBS students were named Fulbright Scholars, a highly competitive, merit-based program for study and research that goes to a small number of recipients nationwide.

But there’s something else that sets CBS students apart — they are highly engaged. Our students volunteer in community health clinics and launch student groups to address health inequities. They make science more accessible through outreach in K-12 schools, and they serve as peer mentors to their fellow students. All this while they are taking on rigorous academics and directed research in faculty labs.

As a development officer, I can think of no better investment to make than in supporting students. By contributing to scholarships and fellowships, your gift provides access to a world-class education for students who might otherwise not be able to afford it. Scholarships and fellowships also enable the college to remain competitive in our efforts to attract the highest-potential students. Your gifts allow our undergraduates the latitude to immerse themselves in all that this college and university have to offer, and provides the much-needed freedom for our graduate students to pursue their research goals unburdened by worry about how to make ends meet.

As the college celebrates 50 years, what better way to create a lasting legacy than to support future generations. CBS students are an extraordinary group of people who deserve our support. They are, after all, the healthcare professionals, research scientists, science educators and entrepreneurs who will propel us forward as a society.

REEDE WEBSTER
Director of Advancement
**FY15 FUNDRAISING FACTS & FIGURES**

**Scholarships & fellowships**

CBS awarded 138 scholarships and 24 fellowships in FY 2015. Awards ranged from $500 to $5,000 for scholarships, $1,000 to $12,500 for fellowships and totaled $325,680.

**Distribution of funds**

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- **FACULTY SUPPORT**
- **GRADUATE FELLOWSHIPS**
- **CAPITAL IMPROVEMENTS/FACILITIES**
- **STUDENT SUPPORT**
- **STRATEGIC INITIATIVES**

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Send a check in the enclosed envelope or donate online at give.umn.edu. (Click on “Give Now”). Whether you write a check or give online, be sure to note that your gift is for College of Biological Sciences scholarships. You may specify the scholarship if you like.

Questions? Contact Reede Webster at webst033@umn.edu or 612-624-9460.
The college gratefully acknowledges the following donors, who have generously provided support for Itasca, Cedar Creek, scholarships and fellowships, research and a variety of initiatives. Every gift makes a difference.

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AKILA PAI’S path to medicine has been years in the making. After receiving a grant from the American Heart Association while still in high school, she jumped at an opportunity to intern and research at the Minneapolis Heart Institute Foundation (MHIF).

At MHIF, Pai worked with a physician on chart-review-based studies and helped develop an algorithm for caring for patients with critical-limb ischemia, a severe obstruction of the arteries that reduces blood flow to the extremities.

Now a CBS junior double majoring in microbiology and African American studies, Pai still works as a research intern with MHIF. Through this internship, she had the opportunity to shadow physicians, present her research findings at the Veith Symposium in New York City and tour pathology labs and wound clinics.

The end result of all this work? Pai was recently accepted to Mt. Sinai Medical School. While still unsure of what field of medicine she hopes to pursue, Pai sees the direct impact her internship and time in CBS has made in preparing her for life as a physician.

“Being a student in the College of Biological Sciences has really taught me how to work collaboratively with other students in team settings,” says Pai. “It has given me the opportunities to go into medical school as a more well-rounded student.”
A planned gift is a great way to ensure students like Meredith have opportunities to explore their research interests for years to come. Planned gifts come in many shapes and sizes and can include designating CBS as a beneficiary in your will, living trust or through your retirement plan. Additionally, a planned gift can provide future income to you through a gift annuity or remainder trust.

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