

# Cambridge summer program a transformative experience for students



Students describe their experience as “uncovering the road to a vast and unknown ocean” they had only seen glimpses of, and “the most powerful academic program” they have ever been a part of.

They are talking about the Cambridge Undergraduate Scholars Program, a prime example of “experiential learning,” or finding learning opportunities outside the classroom. UB has declared experiential learning an educational priority that will continue to expand in coming years. The rewards of experiential learning range from taking advantage of research and experts beyond UB classrooms to establishing professional networks that lead to

postgraduate opportunities.

The Cambridge Undergraduate Scholars Program reflects what is becoming a UB academic signature: giving the best students a top-notch, off-campus experience.

“I think research and experiential training are critical for our students’ success in life, independent of the career they choose,” says Satpal Singh, associate professor in the Department of Pharmacology and Toxicology, Jacobs School of Medicine and Biomedical Sciences, who envisioned the Cambridge program and now leads it. “It immerses the students in real-life situations like no classroom lectures, or even teaching laboratories, can do.”

Singh’s high aspirations have paid off for the five undergraduates who spent 10 weeks this past summer conducting research in the intellectually heady atmosphere of Cambridge University. Each student was matched with a faculty mentor in Cambridge, and Singh also co-mentored the students. Not only did the student benefit from experiential learning, but the program was located at what Singh called “among the most outstanding and revered institutions in the world.”

“Its researchers are engaged in research at the forefront of several areas,” he says. “In addition, an international experience and interaction with faculty and students from different cultures adds a new dimension to students’ experiences, which helps them in formulating their career plans.”

The students returned to UB this fall with glowing endorsements of their 10-week summer research programs.

“I would recommend this program to as many students as possible,” says Alexandra Van Hall, a senior chemistry major from Owego with minors in mathematics and statistics. She calls the Cambridge experience “without a

doubt, the most powerful academic experience” she has ever participated in.

“The academic atmosphere of Cambridge is like no other place and is extremely inspiring,” she says. “Being pushed to work quickly and having long days was difficult, but really paid off. I accomplished so much more in 10 weeks than I ever thought I could. My project was a success and this has given me confidence in my research abilities.

“For me, this trip was a growing experience, personally and academically.”

Antara Majumdar, a junior biomedical sciences major from Astoria, Queens, says she entered the application process convinced she would never have a chance because there were so many other students more qualified and talented than she. She sold herself short, as it turned out, and her experience was nothing short of transforming.

“I truly believe the Cambridge program really altered my perception of my own capabilities,” she says. “I drew inspiration from the seminars I attended, where visiting scientists would discuss their research so clearly. Sometimes they would draw laughs from the audience. But mostly, they were very clear about largely complex topics.

“Every week I learned even more to enjoy being in the lab and to learn from my mistakes,” she says. “The beauty of being somewhere such as Cambridge is that you can tell that the attitudes of the scientists are different. In a way, it is collaborative and people are constantly going to seminars and conferences.”

Majumdar calls her daily walks through Cambridge “nothing short of exciting.”

“I liked the small-town and cosmopolitan feel that the streets were a blend

of,” she says. “Seeing the chapels and walking through narrow streets was another highlight. I would, without a doubt, go back to Cambridge for future studies. Before I went there, Cambridge was just one of those universities where I thought I would never be able to go. Looking through their website, I would be intimidated by how professional and historical everything looked. I learned to see beyond that through this trip. I even made three good friends while I was there,” she says.

“My lab mentor would constantly ask me each week, ‘Are you enjoying this project?’ I started reading a lot of articles and got to know the true beauty of the topic I was researching,” she says. “It felt like uncovering the road to a vast and unknown ocean, and I had only seen a glimpse of it.”

Mara B. Huber, associate dean for undergraduate education and experiential learning who helped develop the model in partnership with UB Study Abroad, says Singh, who accompanied the students to Cambridge, was “a wonderful mentor,” committed to student success in research and advanced education.

“Dr. Singh’s vision to connect outstanding UB undergraduates with opportunities to work with Cambridge faculty in their labs may be the foundation for something even bigger,” Huber says.

“We are working to expand the program to include summer research opportunities at Oxford for the 2016 program. Building out this initiative takes both vision and commitment, both of which Dr. Singh exemplifies through his leadership and dedication.”

She urges UB students to set their sights on this experiential-learning opportunity, which can be “transformative” to their future career and academic pathways.

“Congratulations to the inaugural class of UB participants,” she says. “They

have represented our campus well and paved the way for future students who will go on to make amazing discoveries and contributions to their respective fields.”

Members of that inaugural class will be honored at a celebratory reception at 11:30 a.m. tomorrow in 24 Capen Hall, North Campus. In addition to Van Hall and Majumdar, they are Austin Price, Lockport; Benjamin George, Pine Bush; and Celia Zhang, Brooklyn.

[For more information on the program](#), visit the Study Abroad website or contact Singh at [singhs@buffalo.edu](mailto:singhs@buffalo.edu).

# Researching in the Rain: Lessons Learned in the University of Cambridge

Alexandra Van Hall  
*Honors Scholar, Class of 2016*

I've never really been one for believing geographical stereotypes, but the cliché of near-constant rain in England? That one is spot on! This past summer, I was fortunate enough to be able to spend ten weeks researching at one of the oldest and most prestigious universities in the world—the University of Cambridge in England. Four other UB students and I took part in the inaugural year of the University at Buffalo Cambridge Undergraduate Scholars Program. When I first found out that I was able to attend the Program, I was thrilled, but as my take-off time counted down, the excitement slowly turned into mind-numbing nervousness; I was going to be in a foreign country without my family, friends, or mentors to support me. Moreover, I would be working in a genetics laboratory which, as a chemistry major, was certainly a step outside of my academic comfort zone.

The adjustment to my new environment began almost immediately. I left New York City in 85°F heat and deplaned in London wearing capris and a t-shirt. Not five minutes after stepping outside, I was shivering. It was around 7°C (or 45°F for my American self) and, of course, raining. Along with two other UB students, I navigated the public bus system to travel from London to Cambridge. Pulling into Cambridge was awe-inspiring! Despite the gray backdrop, the university architecture was breathtaking. My nerves calmed slightly as we met up with the last two UB students in our group and Dr. Satpal Singh, the UB professor who organized the Program. We made a plan to meet up for the first day of the research experience, which launched the busiest and most intellectually challenging ten weeks of my life!



*Touring Cambridge in the rain.*

I was paired with Dr. Marisa Segal, a professor of genetics studying the biochemistry of cell development. In embarking on this experience, I expected to learn about genetics and research design, but I ended up learning lessons that will resonate throughout the rest of my career and personal life:

## **1. Pure Intellect Isn't the Most Important Thing**

Enthusiasm and dedication were definitely my biggest attributes starting out in the lab. I had a basic understanding of genetics and I have steady

lab hands, but the intricacies of protein phosphorylation were above my head. I had two choices: flounder in confusion or keep my chin up and learn little by little each day. I chose the latter option, showing up early every day to read and take copious notes on the methods and reasoning behind each step of the experiments. I met weekly with my fellow UB students and Dr. Singh to discuss papers and research methods. We challenged ourselves and each other with in-depth interrogations of the work we were doing. This attitude led to the summer being the most academically enriching experience I have had the joy of participating in.

## **2. Trust Your Abilities**

As previously mentioned, I was very nervous before getting to Cambridge. As the days progressed, I realized I had all of the skills I needed to succeed. I had previously worked in labs and taken honors chemistry courses, so I was prepared to rise to the challenge. After nine weeks in the Program, the other students and I each gave a fifteen-minute presentation on our research. The talks were attended by professors and students of the Genetics and Pharmacology Departments. After

the talks, several professors complimented us on how much we had accomplished in the short time we were there.



*Marisa and Alexandra in Hampton Court Gardens.*

### 3. Professors are People, Too

Okay, I know this one may sound a little silly, but it's easy to see professors as elite, and as so much smarter than a mere undergraduate. But, the longer I interacted with Marisa, the more I realized that she was just like me. When outside the lab, whether at dinner, tea time (a twice daily occurrence in the Department of Genetics!), or just chatting in her office, we rarely talked about academics. We discussed politics, relationships, and our visions of the world. She was genuinely interested in my service in the Dominican Republic and my plan for volunteer work in the Buffalo Public Schools. When we did talk about academics, Marisa gave me confidence in my abilities and lots of advice about graduate school applications. I came to view her as a friend. The last week I was in England, I went to Hampton Court Palace with Marisa and the PhD student in the lab. We had a great time touring the gardens and the palace together.



*The five UB students enjoying the London Eye.*

### 4. Dance in the Rain

The first word that comes to mind when I think of this summer is fun! Rain or shine, I explored Cambridge and learned everything I could. It can be difficult to be away from home for so long, but I never got homesick. We kept busy, spending our weekends exploring London, visiting the south coast of England, and even hopping on a train to Paris for a weekend. The UB students really made the most of our time abroad and didn't let anything, weather included, get in the way of having fun.

Now, back in Buffalo, it seems a little silly to have been worried about a spot of rain. This fall I will attend Cornell University to earn my PhD in the Department of Chemistry and Chemical Biology, but the lessons of the genetics lab will stay with me always. I'll never forget the summer-- the fun, the knowledge, the friendships, and, of course, the rain! )

# Summer finds UB researchers on land, in labs and by the sea

## Hobnobbing with leading researchers

Satpal Singh, professor in the Department of Pharmacology and Toxicology, chose to spend his summer in England, mentoring UB students through the Cambridge Undergraduate Scholars Program. It's a supreme opportunity for the students, he says.

“A summer-long immersion in the scientific environment at an institution like Cambridge and working shoulder to shoulder with some of the top scientists in the world provide an unparalleled inspirational and heady experience to a student aspiring to be a scientist,” he says.

Singh first conceived of the program a few years ago and officially launched it in 2015. He says it was a transformative experience for those first five students, noting their subsequent selection to prestigious doctoral and other research programs, a nomination for a Goldwater Scholarship and receipt of a



## SUNY Chancellor's Award for Student Excellence.

The competitive program matches four or five UB students annually with researchers in England. In addition to time spent on their projects and in lectures, the students visit other premier institutions, such as Oxford University, Medical Research Council labs and an international mouse functional genomic facility, while also taking time to meet leading researchers.

Four students are taking part in the program this year, working in such areas as gene expression, neurodegenerative disorders, chromosome biology and computational genomics, and, as Singh says, “finding it an exciting and intoxicating scientific environment.”

Antara Majumdar, who expects to receive a BS next spring, agrees. “It truly means a lot to me that I can feel included in the lab’s conversation about research that involves thinking in different ways about existing pathways for disease formation,” she says.

She spends a lot of time with beakers and tubes, investigating the role of a protein called Fbxo7 in regulating the proteasome in the cell. She wants to know more about genetic factors controlling the development of the nervous system, with the goal of becoming a physician adept in the treatment of neurodegenerative conditions such as Parkinson’s disease.

The students also find time to visit local landmarks like Buckingham Palace, the Tower of London, Canterbury Cathedral and Harry Potter Studio. Majumdar has made time for walks and water. “My lab recently took me punting down the River Cam and I can actually punt as well,” she says.