

# INTEGRATIVE BIOLOGY

## Welcome to the Inaugural Issue of SIB Connections!



Dear Alumni,

Welcome to the first edition of SIB Connections, a newsletter we've launched this year specifically for you, our more recent graduates. Since the School of Integrative Biology was formed in 2004, roughly two thousand of you have earned your bachelor's degree and gone on to exciting and fulfilling careers in a range of fields. We would like to stay in touch with you to help you celebrate your successes, navigate your challenges, and connect you with other alumni and our current students.

As you can see throughout the pages of this newsletter, our students and alumni are doing incredible things, from veterinary medicine to statistical analysis for conservation. You can learn more about their stories by following us on our new social media platforms. We are on Facebook, Twitter, and Instagram at [@iBioIllinois](#).

Our communications coordinator, Rose Keane, joined us this year and you can expect to hear more from her on these and other platforms. If you'd like to see other profiles of our students and alumni, look for our series on social media, the #iBioExperience. Feel free to post your own!

Additionally, you'll hear about our Alumni Mentoring Program, coordinated by Christina Swanson. Through this program, alumni can connect with current students and offer them their mentorship, perspective, and support as they navigate the beginning of their careers. These connections have been invaluable for our students, and our career class, IB 292: Translating your IB Degree into Career Success, provides students with an opportunity to connect with professionals in a variety of fields to learn from their experience after graduation. If you're interested in participating in the mentoring program, you can learn more by visiting [sib.illinois.edu/alumni/mentor](http://sib.illinois.edu/alumni/mentor) or by contacting Christina at [silima2@illinois.edu](mailto:silima2@illinois.edu).

In other exciting news, this summer the Department of Animal Biology became the new Department of Evolution, Ecology, and Behavior. This new name reflects the breadth and depth of research being done in the department, with our faculty and students engaged in research across multiple continents and across all the scales of life. You can learn more about the department at [sib.illinois.edu/eeb](http://sib.illinois.edu/eeb).

I hope that you will enjoy reading about the recent accomplishments of our students and faculty. We always enjoy hearing from our alumni and friends, so when you are next in Champaign-Urbana, please come and visit us in 286 Morrill Hall.

With my best wishes,

A handwritten signature in black ink that reads "Carla E. Cáceres".

Carla Cáceres - Director, School of Integrative Biology

# What can you do with an IB degree? Our grads have the answers!

This has been the driving question of the Alumni Mentoring Program for the past three years. Our students come to us with concern about their future, especially about what they can do with their degrees.

We wanted to change that. We dug in to figure out what exactly our graduates were doing with their degrees, and how they got there, to give our students data-driven resources and tangible examples of their (many) options. Even better, by connecting back with our IB community we found a passionate group of mentors, excited to share their experiences with our current students.

*“The unique aspect of having alumni in almost every lecture helping out with every step of the job search process is an experience I couldn’t have gotten anywhere else.”*

These individual connections with alumni mentors have been pivotal for our students, and our career class, IB292: Translating your IB Degree into Career Success, is a great example of how impactful these relationships have been. Students engaged with professionals in a variety of fields, learning about their options and what it takes to be successful, and the alumni could relate to feeling lost and were excited to share the insights and perspective they gained after graduation.

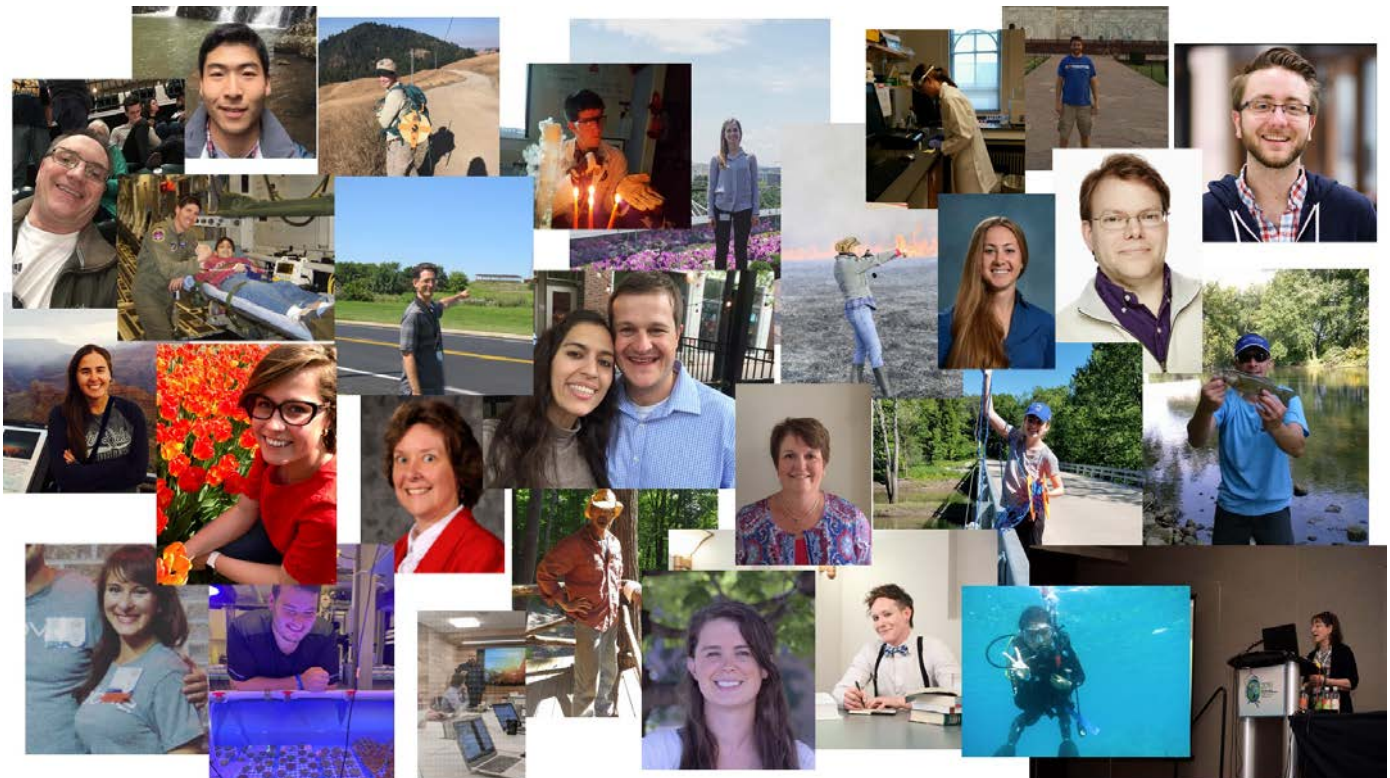
By the end of the class students felt knowledgeable, comfortable, happy, confident, and that they had resources for success. They gained a knowledge of what they can do with their degree and were motivated to take initiative and make actionable changes to improve their own career outcomes.

This past year alone we’ve facilitated over 30 mentor-student connections, and we’re excited to grow that number as our Program expands! I have personally experienced the incredible impact these relationships have had on students’ confidence, and the shift from dread to excitement about their future. It really does change lives (which is why I love this job!).

The reason this Program works is because of the participation of alumni like yourself, so if you have even a few minutes we would love to hear from you – even just to say hello and add your job title to our growing list. To learn more, contact me, Christina Swanson ([silima2@illinois.edu](mailto:silima2@illinois.edu)) or fill out our short profile survey at [go.illinois.edu/SIBAlumniProfile](http://go.illinois.edu/SIBAlumniProfile).

This course couldn’t have happened without the 30+ mentors who have dedicated their time and energy to our students – thank you for making it a huge success! A special thank you to Steve Caldwell who has been an indispensable collaborator and mentor. ❖

*- Christina Swanson, Alumni Mentoring Program Coordinator*



# From the lab and field to the blog: SIB Student Research Experience!

Student researchers are critical to the success of SIB, and the collaborative relationships that they develop with our faculty prepare them for exciting careers in all kinds of industries. Over half of all of SIB undergraduates gain some form of research experience during their time at Illinois, which provides them with hands-on skills developed in the field and the lab. Using these skills, our undergraduates are uniquely poised to tackle complex, interdisciplinary problems.

Faculty benefit immensely from having these dedicated, creative students working with them full-time during the summer. This mentor-mentee relationship goes far beyond a set of extra hands in the laboratory. Students bring with them fresh ways of looking at long-standing problems, boundless energy and infectious enthusiasm. These research-based connections transform the way that our students engage with their undergraduate experience and the relationships are often maintained long after the student has graduated.

Through our new blog series the SIB Student Research Experience, our students tell their stories to put a face and a name behind their data and results. Their accounts show in a very tangible way how their professional journey relates to their research goals, and highlights the wide range of backgrounds and interests we have here in SIB. To learn more, visit our blog at [sib.illinois.edu/blog](http://sib.illinois.edu/blog). ❖

## Behavior and Barcoding at the Bee Research Facility

“I had several responsibilities around the Bee Research Facility. One was taking care of small indoor bee colonies. Each colony had a queen who could lay up to sixty eggs a day. I supplied food for the colonies and extracted these eggs, which were given CRISPR injections to manipulate their neurological development.

The task I spent the most time on was bee barcoding. Bee barcoding involves creating a colony of 1200 individually identifiable bees by gluing a unique QR code to the back of each one. Once the colonies were made, the computer system was able to track each individual bee, measuring how different environmental factors affected both specific bees and the colony as a whole.



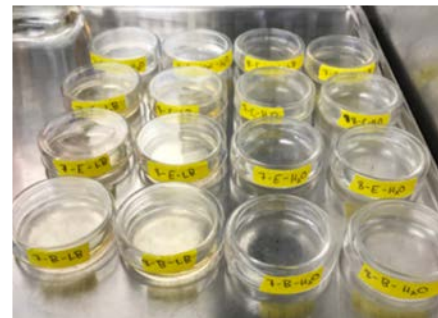
This research job was an informative experience that helped me further my career goals and improve my scientific skills. Working in an Integrative Biology lab helped me improve not only my biology skills, but my scientific skills as a whole. I received a firsthand look at what considerations are necessary for real research.” ❖

- Briana Sobecks, undergraduate

## Research Success through Mosquito Mentorship

“A field season with Allison was not what I initially expected, I’ll admit. It involved going out to houses to collect mosquito eggs from the field and then bringing back these eggs to count under a microscope and then hatch. That first summer, I went out to houses and counted eggs three days a week with Allison and other members of the research team.

Allison taught us how to identify mosquito species, different fly species, and she taught us to always wear bug spray when doing field work in mid-July. I was doing some of the least technical work I’d ever done in lab, but I had by far the most fun, and I learned so much more about insects, the research process, and study design.”



This was really fun for me, because I got to work with different people from the Illinois Natural History Survey (INHS) in order to learn various new laboratory techniques. I was taught how to culture bacteria, how to make a bacterial suspension from my culture, how to work in an aseptic environment, among other skills. I even came up with my own experimental procedure.” ❖

-Claire Dust, alumna

## Illini Fest: A Celebration of Illini Pride in Chicago

The School of Integrative Biology joined several other campus units this past summer at the very first Illini Fest in downtown Chicago. Illini Fest was held in Millennium Park's Park Grill Plaza on July 18, with hundreds of Illinois alumni coming to celebrate.

Designed to highlight the many connections between the University of Illinois and the Windy City, Illini Fest gave alumni a chance to reconnect with each other, enjoy a drink and live music, and interact with notable Illini such as Chancellor Robert Jones, head football coach Lovie Smith and athletic director Josh Whitman.



SIB director Carla Cáceres, communications coordinator Rose Keane, and entomology graduate students Ed Hsieh and Scott Clem showcased a brief snapshot of all the exciting work being done within SIB through an insect petting zoo, DNA necklaces, and slideshows highlighting the wide range of research conducted within the three departments.

While Cecilia the tarantula might not have won the proverbial award for show-stopper (that goes to Illini basketball player Giorgi Bezhanishvili for teaching the crowd how to salsa), visitors to the SIB booth were a blend of alumni, prospective students, and interested parents, all of whom were eager to either share in a moment of nostalgia or look optimistically towards their future at Illinois. Over 5,000 people attended the event, which included demonstrations from departments, institutes, and colleges from across the University.

To watch a video of the event, visit: [go.illinois.edu/IlliniFestVideo](https://go.illinois.edu/IlliniFestVideo). ❖

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## Alumni Award – Call for Nominations!

The School of Integrative Biology has a tradition of teaching and research excellence over 150 years old, when courses in Zoology, Botany, and Entomology were first taught at the University of Illinois. Our departments were founded in 1884 (Zoology/EEE, Genetics and Development, Animal Biology), 1901 (Botany/Plant Biology), and 1909 (Entomology). In the last century and a half, our faculty have had the pleasure of working with tens of thousands of undergraduate and graduate students who have gone on to change the world through their impactful and cross-cutting work.

To celebrate the accomplishments of our alumni, the School of Integrative Biology is offering two awards to recognize exceptional alumni who have made significant contributions through outstanding professional achievement or have provided exceptional service to the School or the departments.

We seek nominations for the two following awards:

- **Achievement Award** for outstanding professional achievement that demonstrates the value of an education (BS, MS, or PhD) from the University of Illinois.
- **Outstanding Recent Alumni Award** for a recent graduate (within 10 years of final Illinois degree) for outstanding or noteworthy professional achievement.



Nominations may come from alumni, faculty, commercial enterprises, college of campus advancement personnel, friends of the University, or other academic institutions that employ Illinois graduates. Nominees must have earned a BS, MS, or PhD in Biology (with or without a concentration), Botany, Ecology, Evolution and Conservation Biology, Entomology, Genetics and Development, Integrative Biology, or Plant Biology.

To nominate an alumni for either the Achievement Award or the Outstanding Recent Alumni Award, please include the nominee's name, address, degree(s)/years at Illinois, employers, career path, C.V., statement of recipient's achievement or significant accomplishments, and at least two letters of support from individuals familiar with the nominee in a single PDF and submit to [go.illinois.edu/SIBAlumniAwardNomination](https://go.illinois.edu/SIBAlumniAwardNomination) by December 1st annually. Questions can be directed to [rkeane3@illinois.edu](mailto:rkeane3@illinois.edu). ❖

# Trelease Woods: Centuries-old forest teaching students, professors

The following is an excerpt from a piece written by College of LAS Senior Editorial Specialist Dave Evensen. To view the full article, visit [go.las.illinois.edu/TreleaseWoods](http://go.las.illinois.edu/TreleaseWoods). To watch the video, visit [go.las.illinois.edu/TreleaseWoodsVideo](http://go.las.illinois.edu/TreleaseWoodsVideo).



“One morning last summer, a half dozen Illinois students climbed into cars and drove east of campus. They passed a few miles of houses and farmland before they turned onto a country road and parked near something unusual, at least for these parts. It was a forest. They put on their boots. They had a lot of work to do—and that’s an understatement. The students’ job was to document every single tree in that forest, from saplings angling for sunlight to stately giants with trunks more than a meter in diameter.

There’s a unique kind of magnetism emanating from Trelease Woods. Partly because of its close proximity to the University of Illinois, which owns it, and partly because it’s so old and rare, the 60-some acres of woodland is one of the most-researched tracts of forest in the world. Nobody really knows how old it is, other than it pre-dates the United States as we know it. Trelease Woods is one of the last remaining fragments of the Big Grove, a prairie forest that existed for centuries in east-central Illinois before white settlers arrived in the early 1800s.

Most of the Big Grove subsequently fell to loggers, but somehow Trelease Woods eluded the axe until 1917, when it was acquired by the university. Today it’s managed by the University of Illinois Committee on Natural Areas, and it has much to offer researchers and students.”

Named for William Trelease, an eminent early 20th century botany professor at Illinois, Trelease Woods is host to several classes each year, from integrative biology to civil and environmental engineering. It’s the site of numerous, important research projects on topics ranging from butterfly ecology to mosquito control and genetics.

Carol Augspurger, for example, professor emeritus of plant biology, has been visiting Trelease Woods every week for 27 years to study the effects of climate change on forest phenology: the timing of leaf budding, expansion, coloration, and dropping. She collaborates with Chunyuan Diao, professor of geography and geographic information science (GGIS), to compare satellite and drone data with observations on dozens of plant species that Augspurger has made in Trelease Woods.

Gene Robinson, professor of entomology and director of the Carl W. Woese Institute for Genomic Biology, conducts molecular analysis on bees in Trelease Woods. The researchers are interested in identifying genes that orchestrate changes in social behavior and genes whose activity are affected by changes in the social environment. “Trelease Woods,” Robinson said, “has been integral to our lab’s success.”

There’s also much to be learned from Trelease Woods about forest ecology. That’s why the students were there that morning last summer—and many mornings after that. They were collecting data for a research project led by Jim Dalling, head of the Department of Plant Biology, and Jennifer Fraterrigo, professor of natural resources and environmental sciences in the College of Agricultural, Consumer and Environmental Sciences.



If you had joined them, however, you might get the feeling that this research touched on something deeper than plotting coordinates and measuring tree diameters. Maybe you’d sense it before you even reached the tree line and peered into the dark, green gloom, and heard the creak of trunks, the scream of a hawk, or the knocking of a red-headed woodpecker on a hickory. Maybe you’d sense it when you spotted the shadows of behemoths: massive bur and chinkapin oaks, some of which were saplings about the time that Galileo was arrested for arguing that Earth revolved around the sun. ❖

## Alumni Feature: Dr. Adam Dolezal

Dr. Adam Dolezal is an assistant professor in the Department of Entomology, returning to the University of Illinois after completing his bachelor's in Integrative Biology in 2006 and earning his doctorate from Arizona State University in 2012.

### **Q: What is your area of research, and what are you working on now?**

A: I study how bees respond to environmental stressors, so I consider myself an integrative biologist whose work mixes physiology, behavior, ecology, evolution, and genetics within the umbrella of being an entomologist. I mostly focus on honey bees, but have projects involving native bee species as well. The main stressors bees encounter can be categorized as diseases, nutritional stress, and pesticide/chemical exposure. Much of my research involves looking at how at least two, and sometimes all three, of these factors interact to affect physiology, behavior, and ultimately success.

My work, especially on nutrition and pesticide interactions, is usually in the context of studying how bees respond to the conditions of the agricultural Midwest, particularly in the corn- and soybean-growing areas that span the region. We want to understand what challenges bees face in these landscapes to figure out ways to help them cope and develop sustainable pollinator systems.

### **Q: How did you go from SIB alum to SIB Assistant Professor?**

A: As an SIB undergraduate, I was able to take some exceptional courses, especially upper division courses, that helped me build a solid foundation in different biological concepts. However, it was working in a research lab that really set me on this path. I spent a summer working in the Suarez lab in SIB, and I liked it so much I stayed on volunteering through the next semesters as well. In retrospect, I must have been a little annoying hanging out around the lab so much, but I really enjoyed just interacting with people and trying to help them do little parts of different projects. After graduation, I decided to pursue graduate school, and I was accepted into a lab at Arizona State University that was focused on social insect biology.

When I finished there, I wanted to work on new system and try to move my research into areas with agricultural relevance. I was hired into a great lab at Iowa State University working on virus/nutrition interactions in honey bees. After almost 5 years at Iowa State, I came back to Illinois and joined the faculty in SIB. It's really great to be back for many reasons. I get to teach some of the courses I enjoyed as a student, and I get to work with a lot of great people. This includes all the SIB faculty as well as the students. We attract really great graduate and undergraduates!



### **Q: What's your favorite memory of your time with SIB?**

A: Looking back, some of my favorite times were when I was able to do field work collecting insects as part of research or courses. I was able to do some ant collecting locally and in other states, which was really exciting for me as I had not done too much travelling before. One of my favorite classes was an insect evolution and taxonomy course that involved a field trip to Shawnee National Forest. The professor teaching it (Dr. Jim Whitfield), the TA, and the other students were all so much fun to work with; the trip was all about finding and collecting insects from around the area. I remember blacklighting at night (putting up a blacklight to attract insects onto a sheet) and seeing what seemed like thousands of daddy long-legs (Opiliones). You could roll them all up into a basketball-sized orb of them. It was amazing.

Clearly I liked the insect collection part, but a bigger part of why that memory, and that course in general, were great was the interactions I had with the instructors and the other students. Having a great professor and TA helps a lot, but I also think being somewhere with lots of great students is so fantastic. Especially in those upper-level classes, you get so much more out of it when everyone in the class is interacting and working together. ❖

## Hear from other IB Alumni!

Since its formation in 2004, the School of Integrative Biology has trained and educated almost two thousand alumni, many of whom have pursued careers in all kinds of fields. Learn about what these alums are doing now, and visit our website to learn more about what other alumni are doing: [sib.illinois.edu/alumni/mentor/profiles](http://sib.illinois.edu/alumni/mentor/profiles). ❖



**Matt (Grobis) Sosna**  
Class of 2012  
*Data Scientist, Aquicore*

Matt used his degree to pursue a Fulbright and then a PhD at Princeton University. He now works to cut carbon emissions by optimizing buildings' energy use.

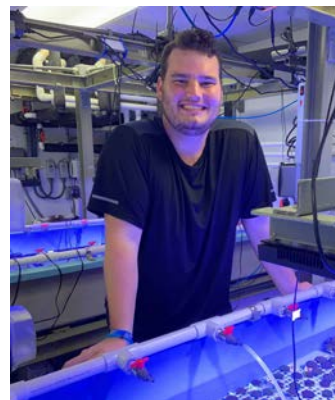
**Laura Klein**  
Class of 2011  
*Research Fellow, Australian Red Cross Blood Services Milk Bank*

Laura received her PhD in Human Evolutionary Biology from Harvard University in 2018. She is now using her degree to improve health outcomes for preterm babies in Australia.



**DaTeng Lin**  
Class of 2016  
*Research Associate, Illumina*

DaTeng is working to improve the efficiency of the enzyme process development. "Whether I'm creating a presentation or carrying out experiments, the IB degree had me fully prepared for a career in biotechnology."



**Nathan Martin**  
Class of 2018  
*Coral Health and Disease Intern, Mote Marine Laboratory and Aquarium*

Nathan uses his degree to monitor water quality near coral reefs, as well as conduct experiments on coral reef response to ocean acidification, warming temperatures, microplastics, disease and more.



**Jessica Felgenhauer**  
Class of 2010  
*Veterinarian, University of Minnesota*

Jessica is a comparative animal veterinarian at the University of Minnesota. She works primarily in translational research with a focus on animal welfare.

**Juniper Simonis**  
Class of 2006  
*Owner and Lead Scientist, DAPPER Stats*

Juniper founded DAPPER Stats to help researchers solve conservation-related problems by "sprucing up" messy or overwhelming data so they can focus on finding solutions more efficiently.



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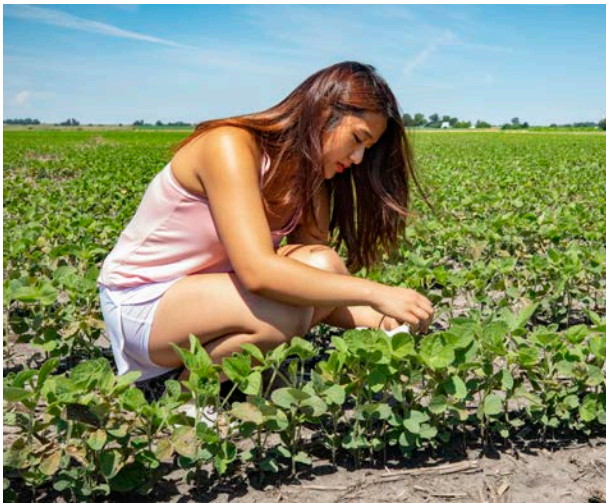
## School of Integrative Biology

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Urbana, IL 61801

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## How can I stay connected to SIB?



We would love to hear from you! Our website includes all of our recent news, research updates, student blogs and more, and can be accessed at [sib.illinois.edu](http://sib.illinois.edu).

SIB is also active on social media! Be sure to like, share and subscribe to stay up to date on our news, events and accomplishments. You can find us on Facebook, Twitter and Instagram by our handle [\*\*@iBioIllinois\*\*](https://www.instagram.com/iBioIllinois).

Our alumni play an important role in helping to guide and mentor our undergraduate students through the SIB Alumni Mentoring Program. For more information about the program, and to get involved, contact Christina Swanson, [sillima2@illinois.edu](mailto:sillima2@illinois.edu) or visit [sib.illinois.edu/alumni/mentor](http://sib.illinois.edu/alumni/mentor).

For everything else, send us an email at [sib@illinois.edu](mailto:sib@illinois.edu). We look forward to hearing from you and celebrating your success! ❖

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## What's New? Let us know!

Did you change your address? Have you had a career switch? Are you interested in visiting campus or joining our Alumni Mentoring Program?

We invite you to complete our survey! [go.illinois.edu/SIBConnectionsAlumniSurvey](http://go.illinois.edu/SIBConnectionsAlumniSurvey). ❖