



THE  
**GRADUATE POST**

The Graduate School Newsletter at Michigan State University

SPRING 2016 | VOLUME 21, ISSUE 2

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**GRADUATE STUDENTS  
PROMOTING UNDERGRADUATE  
STUDENT SUCCESS**

**EXTENDING PROFESSIONAL  
DEVELOPMENT BEYOND  
THE CAMPUS CLASSROOM**

## GRADUATE STUDENTS MENTOR UNDERGRADUATE RESEARCHERS FOR UURAF PRESENTATIONS

Each spring semester, MSU hosts the University Undergraduate Research and Arts Forum (UURAF), where undergraduates who have engaged in research and creative work present to their peers, faculty, and visiting audiences. At the 18th annual forum in April 2016, 875 undergraduate students from 14 different colleges participated in the event; their work was mentored by 525 faculty members. What is sometimes less visible in this showcase is the essential role that graduate students often play in undergraduate students' success.

In the 2016 forum, Morgan Miller, a senior Genomics and Molecular Genetics major, presented a poster explaining how cGAMP, a cyclic dinucleotide that some bacteria use in their own internal communication, manifests itself in bacterial colony morphology. To develop her research expertise, Miller has worked closely with Geoff Severin, a doctoral student in the Department of Biochemistry and Molecular Biology. "I could not have asked for a better mentor than Geoff," Miller says, "Any new technique or experiment that I do he walks me through it, allowing me to be hands on."



**ABOVE:** Doctoral student Geoff Severin and senior undergraduate Morgan Miller in a campus laboratory

PHOTO CREDIT: DAVID WATSON, MSU GRADUATE SCHOOL

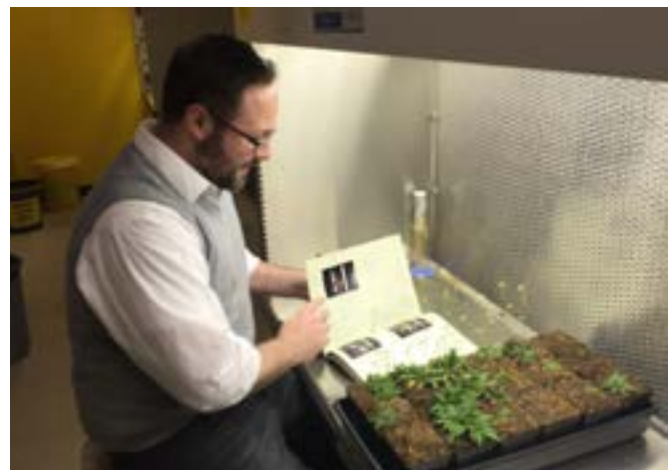
Severin has the ability to communicate both the value and excitement of this basic research, using metaphors ranging from orchestras making music to battle scenes in Star Wars. He is trying to identify signaling pathways mediated by cGAMP in the bacteria *Vibrio cholerae* (which kills tens of thousands of people worldwide each year). "It's like the Jedi mind trick" Severin says, "our goal is to tell the bacteria this is not the human host you're looking for." Severin's and Miller's research could have profound medical implications. Because so many bacteria are becoming resistant to antibiotics, new modes of treatment are necessary. Severin recognizes Miller's contributions to the work of the lab: "Morgan has a gift for applying concepts from her coursework in microbiology and genetics to the analysis and development of hypotheses based on observations she has made in her own research. This skill allows us to function in a collaborative fashion, rather than as a supervisor and subordinate. We share ideas as a team and develop strategies together to push her research forward."

Another dynamic team represented at this year's UURAF is Robert Loepp, a doctoral student in Plant Sciences, and Magie Williams, a sophomore in Plant Biology. Unlike Miller, Williams has just started her research career, and Loepp has been instrumental in helping her learn what that involves. Loepp says he has focused on teaching the fundamentals of lab work in her field, such as caring for the plants, taking measurements, and processing plant materials. This team clearly works well together: Williams' first UURAF poster, titled "Nonsense & Rubbish: Identifying Roles of Nonsense-Mediated mRNA Decay in Plants," won first prize in one of this year's plant sciences sections.

Loepp's own work focuses on tracking which elements in the chromatin material of plants make them activate in certain ways. He investigates the signaling system that causes cherry trees to flower. Is there a way that we could tell those trees not to flower during an early thaw, like the one a couple of years ago, which caused catastrophic damage to the Michigan cherry crop? Trying to answer this question, he explains, is like working your way through a web because there are so many interconnected impulses within plants. Loepp and Williams are trying to unravel this web one thread at a time.

Loepp returns to the same phrase over and over to describe their work together. "It's pure science," he says. There are other labs in the plant science building, even across the hall from his own, where work is done with more immediate application, but Loepp and Miller focus on the larger underlying questions that enable that practical application to flourish, the kind of work that can only be done at a university willing and able to invest substantial resources in basic research.

Graduate students are often the first link between undergraduates and scientific research. Behind many of the UURAF presentations is a graduate who has patiently taught a crucial skill, or coached a budding researcher in developing her research questions. And as they learn to mentor undergraduates, these doctoral students develop the skills that will make them outstanding teachers and researchers in their future careers, the next generation of faculty mentors inspiring the work of undergraduate investigators and creative scholars.



**ABOVE:** Doctoral student Robert Loepp with some of the plants he researches

PHOTO CREDIT: DAVID WATSON, MSU GRADUATE SCHOOL

## UNUSUAL RESEARCH QUESTIONS UNITE STUDENTS FROM ALL FIELDS AND LEVELS

The Digital Humanities and Literary Cognition Lab (DHLC) in the Department of English brings together undergraduates and graduate students from multiple disciplines to answer unconventional questions with an unusual set of tools. The lab—founded by assistant professor Dr. Natalie Phillips, who serves as co-director with associate professor Stephen Rachman—melds theory and methods from aesthetics, critical theory and neuroscience, to explore the workings the brain as it processes literature.

The lab is currently working in three groups: the essay group, the neuroaesthetics group, and the brain group. Each makes a unique contribution to the work of the lab. The essay group traces what people remember when they read and how it relates to analytical thinking; the neuroaesthetics group examines what parts of the brain light up in an fMRI when readers say they experience pleasure and displeasure with what they read; and the brain group tackles functional questions about what happens in the brain as subjects read. Students from fields such as English, English education, dance, neuroscience, biochemistry and molecular biology, anthropology, and the history and philosophy of science, bring their disciplinary expertise to bear on collaborative investigations. They learn both about new areas of research and about how to work in new ways as cross-disciplinary, cross-generational teams.

Erin Pevan, a master's student in anthropology, came to the lab with an interest in visual anthropology, particularly graphic novels and video games. "As an anthropologist in the DHLC," Pevan says, "I have a different perspective to contribute to their work, which opens up interesting collaboration. I've also had the privilege of meeting several brilliant people who I know will be colleagues throughout my academic career." The spirit of collaboration lies at the heart of what draws many students to the DHLC.

Lana Grasser, an undergraduate neuroscience major who serves as one of the undergraduate lab leaders, says that part of what makes the DHLC unique is that graduate students and undergraduates work together as equals. In many labs, undergraduate

researchers are supervised by graduate students; the relationship is often hierarchical. But because the research of the DHLC is so new, the graduate students and undergraduates act as co-investigators. Researchers there describe it as a warm and collegial working environment. One of the people who plays a big role in creating that atmosphere is Cody Mejeur, a doctoral student in English who serves as the graduate student lab lead for the neuroaesthetics group.

When asked about his role in the lab, Mejeur does not immediately describe the important work that he does organizing, processing new experimental subjects, running meetings, or analyzing data. Instead, he talks about his interest in making sure that everyone who works in the lab feels that their ideas and contributions are noted and appreciated. He talks about the importance of the mentoring role that graduate student lab members can play in talking undergraduates through the process of applying to graduate school. The undergraduates in the lab speak about him less like a supervisor and more like an older brother. This collegial relationship, they say, is as important to their own development as the research in which they are engaged. The lab is a place where important investigations are combined with real human interactions; where advanced students and novices can learn together, work together, and be people together.

While the DHLC's goal is to develop new approaches to understanding how the human brain works and how it responds to literature, there is another experiment happening as well, which involves creating an open, collaborative, unconventional space in which to practice Digital Humanities. Both projects are cutting edge. And the rewards are evident: two undergraduate researchers in the lab, Sal Antonucci from English and Jacob Frazier from James Madison, won first prize in the Humanities and Arts poster session at the 2016 UURAF for their presentation "Literary Neuroscience: Understanding the Nature of Aesthetic Pleasure."



**ABOVE:** The Digital Humanities and Literacy Coalition lab essay group meets in a classroom on the campus of Michigan State University.

PHOTO CREDIT: DAVID WATSON, MSU GRADUATE SCHOOL

## GRADUATE AND UNDERGRADUATE STUDENTS TEAMING UP TO PROMOTE UNDERGRADUATE STUDENT SUCCESS

By Melissa McDaniels, PhD, Assistant Dean and Director, Teaching Assistant Program

<http://grad.msu.edu/>

Before master's student Allison Longton started working with the College of Social Science to train undergraduate tutors, she had, in her words, "put myself in a box. I was trained to teach students in grade school. I knew the importance of using creative strategies to help students learn in a variety of disciplines. Now I realize that these strategies are applicable to those who are 18, 19, 20 years old and beyond as well."

Longton is currently working with two curriculum and assessment experts from the College of Social Science (Dr. Marisol Mastangelo and Dr. Brandy Ellison) to develop and shape training sessions for Undergraduate Learning Assistants (ULAs). ULAs work in support of MSU's undergraduate student success initiative (<http://undergrad.msu.edu/success>) by tutoring and running review sessions for their peers. "Our goal in this endeavor," Longton says, "is to help ULAs come to see the magnitude of their responsibility. We are trying to pass on applicable best practices in teaching and learning. We want them to learn to think flexibly and see tutoring as a dynamic enterprise."

Usually ULAs work in tutoring centers and "help rooms" in the Residential Neighborhood system at MSU (<http://neighborhoods.msu.edu/content/about>). "People often think that the

teaching and learning that take place in these one-to-one or small group environments may not have a significant impact," according to Longton. "You can do a lot in 30 minutes. It is fun to work with these extraordinary ULAs to promote strategies that work in these time-limited settings." She also realizes that the ULAs she works with are full-time students: "It is important to be realistic and provide them with best practices that they can implement effectively in a relatively short time period."



Longton is succeeding by empowering ULAs from disciplines as diverse as economics, history, and political science with tools such as adapted outlines and graphic organizers. Her work is just one bright example of how graduate students are partnering with undergraduate students to promote high quality undergraduate education at MSU.

## GRADUATE STUDENTS MEET WITH NSF, STATE REPRESENTATIVES IN WASHINGTON, D.C.

By Steven Thomas, AGEP, CAFFE, and SROP Project Manager

<http://grad.msu.edu/agep>

In February, the Graduate School invited a group of advanced doctoral students from the MSU AGEP (Alliances for Graduate Education and the Professoriate) community and the FAST (Future Academic Scholars in Teaching) fellowship program to represent MSU in Washington DC. This trip had three components: a visit to the National Science Foundation (NSF), discussions with elected representatives on Capitol Hill, and recruitment of potential graduate students during the Emerging Researchers National (ERN) conference. These activities provided an inside look at how science policy and funding work, and a preview of the future directions of scientific research. "It was great to meet the people doing the work behind the scenes at the NSF and Capitol Hill," recalled Alexandra Colón-Rodríguez, a doctoral student in Comparative Medicine and Integrative Biology who participates in the AGEP community.

The trip started with the visit to NSF, where the group met with division directors, program directors, and AAAS fellows to get advice on career plans and grant-writing, and to learn about the workings and mission of the agency. Talking with representatives of NSF, the students had a chance to share their research with scientific experts; visiting Capitol Hill, they needed to learn how to pitch the value of their work in broader terms. Jacob Courville, Assistant Director for Governmental Affairs for MSU, led an advocacy training session for the group in January. So when the February trip came around, the students knew how to discuss the impact of their individual research projects with congressional staffers. The group met with the offices of Michigan Senators Debbie Stabenow and Gary Peters, and of Michigan Representatives John Conyers, Debbie Dingell, Bill Huizenga and John Moolenaar.

For the third leg of DC trip, the participants attended the NSF and American Association for the Advancement of Science ERN Conference. During the conference, the MSU graduate students helped to judge posters and oral presentations of the young scholars who attended the meeting. They also recruited these emerging scientists both for MSU STEM graduate programs, and for SROP (Summer Research Opportunities Program), which brings talented juniors and seniors to MSU to do a 10-week mentored research project with a faculty member. "I was particularly struck by the interest of the students at the recruiting booth" said Kateri Salk, MSU FAST Fellow and doctoral student in Integrative Biology. "These students are very excited about potential careers in science, and I was blown away by their reactions when we genuinely expressed interest in their research and opportunities to pursue internships and programs at MSU."

Reflecting the diversity of the AGEP Community and the FAST Fellows program, the trip participants represented graduate programs in the Social Sciences, Natural Sciences and Engineering. The visit was organized by Steven Thomas, MSU AGEP Program Manager, with the support of Graduate School Associate Deans Dr. Pero Dagbovie (History) and Dr. Antonio Nunez (Psychology and Neuroscience).

For more information about the MSU AGEP Community or the MSU SROP program, contact Steven Thomas ([deshawn@grad.msu.edu](mailto:deshawn@grad.msu.edu)).

### HEAR SOME OF THE STUDENTS TALK ABOUT THEIR TRIP:

- Ashley Sanderlin: <http://bit.ly/SanderlinAGEP>
- Alexandra Colon: <http://bit.ly/ColonAGEP>

## FROM FOOD SCIENCE TO SERIAL ENTREPRENEUR

By Katherine Kelly, Communications Manager

<http://supportforstudents.msu.edu>

Post-graduate life is a series of left-hand turns.

At least, that's how Tom Ryan describes it.

After completing three degrees in food science (BA, 1979; MS, 1982; PhD, 1985) from Michigan State University, Ryan ventured out to work in the packaged goods industry, working with such brands as Duncan Hines and Pillsbury. He had known early on that a career in academia was not something he was interested in, and had planned his academic programs accordingly. Working with his advisor, Dr. Ian Gray, he was able to develop a uniquely flexible program, including business management, marketing, and organizational communications classes to complement his technical coursework focused on flavor and fragrance chemistry. This "avant-garde" program, as he describes it, would serve him well in his first jobs after graduation.

"I was able to be personally multi-dimensional, but really cross-functional in all the jobs I did," says Ryan. He could slip in to conversations with the marketing team just as easily as the product development team.

Ryan views those first jobs in his career as educational in their own right, each teaching him a little bit more about himself and what he wanted from a job and a career. They helped him identify where what he knew how to do and what he loved to do overlapped.

"I wanted to spend my time doing things that were highly rewarding, highly motivating, highly impactful – and so, those early jobs helped me figure out post-school what those things were for me, personally."

One of those lessons came from research Ryan worked on while focused on microwavable goods for Pillsbury. In an effort to try to predict up-and-coming food trends, Ryan was researching the latest trends in the restaurant industry. He enjoyed the work and thought he'd like being on the other side of the food industry. In what he refers to as a "magic moment," he was approached by Pizza Hut and offered a position creating new food concepts for the restaurant chain. He took the chance, even though he saw the change in career paths as a risk.



ABOVE: Tom Ryan photographed at the L.A. Live Tom's Urban location.

PHOTO CREDIT: TOM'S URBAN

"It's what I call one of the left-hand turns in my life. It wasn't the easiest turn to make, but it turned out to take me someplace really great," Ryan says.

Where did that first left-hand turn lead?

Ryan's path has led him to work with Pizza Hut, where he developed the stuffed crust and meat lover's pizzas, among other menu items. He later created the Dollar Menu, McGriddles, the Fruit & Yogurt Parfait, and more for McDonalds. He's also worked in product development at the executive level at Quiznos and Long John Silvers.

His more recent left-hand turns led him down the road to his current life as a serial restaurateur. Ryan is the founder of Smashburger, Tom's Urban, and Live Basil Pizza, all under the umbrella of Consumer Capital Partners, of which he is Chief Concept Officer. He's involved with everything from developing concepts and products and designing the customer experience, to developing branding and marketing.

Ryan sees more change on the horizon for his industry, as new customers enter the scene. He's already seeing the market adjust to meet the needs of the Millennials, who are much more focused on shared experiences and the stories behind the food they order than were past generations. In an effort to stay ahead of the curve, Ryan spends a lot of his free time looking for inspiration from others. He reads about the restaurant industry, visits other restaurants, and reads a massive collection of cookbooks. He also finds inspiration in music, which he says proves that no matter what has already been done, there is always something new that can be created.

Ryan is always "keeping aware, keeping modern, keeping up, and keeping inspired by the fact that there is always the next blank page, no matter what." By taking in a lot of information and making observations, you're prepared to make connections when you need to develop a solution. This habit of making connections is what leads to success in careers.

"Impactful solutions require lots of collaboration, lots of connectivity, and the ability to sell and manage people to a fixed point on the horizon," Ryan says. When he was in school, these interdisciplinary approaches were unusual. He says he was pleased to see that this is changing during a recent visit to campus. Whereas he had to wait until after his graduate work to learn the importance of cross-functionality, diversity, talent and perspective in making things happen, he's hopeful that now students are aware of these needs before setting out on their career journeys.

As for Ryan, his path away from academia has been full of turns and changes, but they've all led him to where he is now and he is grateful for the people and events that shaped him.

"Kind of in hind sight, the left-hand turns tend to be the best ones."

## PHD CAREER SERVICES EXPANDS ALUMNI AND EMPLOYER RELATIONS EFFORTS

By Julia McAnallen, PhD, Director of PhD Career Services

<http://grad.msu.edu>

One of the first offices of its kind in the nation, MSU PhD Career Services (<http://grad.msu.edu/phdcareers>) has been an active partnership between the Graduate School and Career Services for 10 years. In its second decade, the office has broadened its focus to the career and professional development needs of doctoral students across a wider variety of career paths. Under the direction of Dr. Julia McAnallen, PhD Career Services has expanded its efforts in alumni and employer relations. This includes promoting the value and versatility of doctoral degrees to a wider base of employers and the general public, and regular engagement with MSU PhD alumni.



Alumni have been a key resource for events and workshops organized by PhD Career Services. More than a dozen alumni recently contributed to the success of the February 2016 Expanded Careers Week for PhDs in February 2016, which included a conference on careers outside academia, a panel and networking event on federal government careers, and a panel on careers in community engagement. We are looking to connect with more alumni for future events; if you would like to serve on a panel or participate in a workshop, email us here: [hireaphd@msu.edu](mailto:hireaphd@msu.edu). You can also stay connected by joining our LinkedIn group "Michigan State University Graduate Career Network."



Dr. John Oliva, who earned his PhD from Michigan State in Mechanical Engineering in 2010, understands the process of exploring multiple paths. Currently an analyst in the computational engineering group at Hemlock Semiconductor, Oliva shared his career journey from academia to industry in a Graduate School blog post (<http://commons.grd.msu.edu/index.php/2014/01/unconventional-paths/>) and in a PhD Career Services workshop. "When I was a graduate student myself," Oliva says, "navigating the PhD process and the related job field was difficult. I always felt like I was wandering through the wilderness without a map." He hopes that connecting with current MSU doctoral students will help them better understand the opportunities available and the skills needed to navigate through them: "Working with PhD



Career Services as an alumnus now, I have enjoyed the opportunity to talk with current grad students, and I hope that I have been able to help clarify the path a little bit for them. Through the programs that I have volunteered with as an alumnus, I have witnessed the benefits that the current students gain from the group. I think that my transition from PhD candidate to working professional would have been much smoother if I had the services available that current students now have."



In addition to the work done by volunteer alumni, PhD Career Services makes an effort to keep up to date with the views and concerns of current doctoral students and postdocs. One way this is done is through the Graduate Advisory Board (GAB) for Career and Professional Development, which meets monthly during the academic year to provide feedback and advice to PhD Career Services on a wide range of topics, including communications, leadership, career development, and alumni engagement. GAB members also serve as leaders on campus, designing and carrying out new programs and events. "Serving on GAB and working with PhD Career Services was a great way to transfer our accumulated knowledge and experience to current students, especially in how to navigate graduate school and to help set themselves apart in their future careers," said Hovig Kouyoumdjian, a postdoctoral scholar in Chemistry Education.

There are currently more than 3,000 doctoral students at MSU and, if they follow the national statistics, as many as 50% of them will pursue careers beyond faculty and university teaching roles after graduation. MSU PhDs have successful careers in industry, non-profits, government, start-ups, and international organizations, in addition to teaching, research, and administrative roles in academia, and PhD Career Services helps to ensure that they are always, as Han Nu, a recent graduate with a PhD in Civil Engineering, put it, "improving transferable skills in many ways for long-term career development."

**ABOVE PHOTOS:** Various PhD Career Services programs and events

PHOTO CREDIT: MSU GRADUATE SCHOOL

# DEAN'S CORNER

The Graduate School has launched a new website! With features on current students, postdocs, and graduate alumni, the website makes it easier to stay connected to graduate education at Michigan State. Check back frequently to learn about the impact that MSU students and alumni are having on our local and global communities and the ways that they are reframing approaches to the world's most difficult problems.

A recipient of the 2010 ETS/CGS Award for Innovation in Promoting Success in Graduate Education, the Graduate School is a national leader in providing career and professional development resources and programs for graduate students and postdocs. We have

received many major national grants in support of our efforts, and we are active participants in CIC programs that promote the professional development of the next generation of leaders and scholars. You will find links to these activities, grants, and resources on our website.



We look forward to hearing from you about features you would like to see on our website or in the pages of the next Graduate Post.



# THE GRADUATE POST

The Graduate Post is published twice a year by the Office of the Dean of the Graduate School at Michigan State University for faculty, students, staff, alumni and friends.

We welcome your comments and suggestions for future issues. Please send your input to Editor Katherine Kelly at [graduatepost@grd.msu.edu](mailto:graduatepost@grd.msu.edu) or 466 W. Circle Drive, East Lansing, MI 48824.

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Thank you in advance for your suggestions!

Katie Kelly, Editor

# THE GRADUATE POST

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## AGEP STUDENTS TRAVEL TO WASHINGTON, D.C.

MSU graduate students from the Alliance for Graduate Education & the Professoriate (AGEP) learning community at MSU traveled to Washington, D.C., this year to meet with National Science Foundation representatives and government officials, and to help recruit future graduate students to study at Michigan State University. Read more about their experiences on page four of this issue of the Graduate Post.



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## MISSION

To serve as an advocate for graduate education to the University and beyond, and to enhance the quality of graduate education at MSU in all its diverse dimensions.

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