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# The University RESEARCH NEWSLETTER

The University Research Newsletter  
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MILLERSVILLE UNIVERSITY OF PENNSYLVANIA



## A Message from the Provost

Spring semester is when Millersville University comes alive with displays of faculty and student research and scholarship. Throughout the year, undergraduate students, graduate students and faculty collaboratively explore new ideas in a multitude of fields related to the arts, business, education, humanities, science, social sciences and technology. Research opportunities allow our students to pursue their interests, to hone problem-solving skills and to challenge themselves in new ways. Research teams aim to address questions and then present their findings in a professional setting. These collaborations, marked by faculty and students working on an array of research projects while gaining valuable experience in a field about which they are passionate, are notable illustrations of the first two of Millersville University's EPPIIC values: Exploration and Professionalism.

The academic year culminates with the Made in Millersville conference, an opportunity for students to present and celebrate the work that they and their faculty mentors have completed during the past year. Made in Millersville attracts a broad audience of students, faculty, administrators, staff, alumni, parents

and community members and provides students the ability to present their research in a professional environment. Along with the Made in Millersville conference comes the Made in Millersville Journal, an online publication exemplifying the work of students that present at the conference. The journal helps develop professional writing skills and gives exposure to students that are looking to have published research. Ultimately, our students are better prepared for future career pathways. It is truly incredible to experience all the amazing research that students have worked on since last spring.

The University Research Newsletter shows a small sample of the vast number of research projects currently coming to life at Millersville University. I hope you have the chance to experience some of what MU has to offer at the April 14, 2020, Made in Millersville conference in the Francine G. McNairy Library and Learning Forum.

Sincerely,

Vilas A. Prabhu, Ph.D., M.B.A.  
Provost and Vice President  
for Academic Affairs

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Millersville University

# FACULTY INTERVIEW

## Dr. John Wallace

Professor, Entomology, Aquatic Entomology, Medical and Forensic Entomology, Stream Ecology |  
Director, MU Center for Environmental Sciences | Co-Coordinator, Watershed Education Training Institute



### When did you begin teaching at Millersville?

I arrived at Millersville University in the fall of '98, my first semester here. I have enjoyed it immensely, it's been a good run and, it's not over yet.

### Where did you receive your degrees from?

I went to Penn State University, starting out at the Mont Alto campus, and finishing up at main campus for my undergraduate degree. After finishing my undergraduate studies, I would be remiss if I didn't mention that I spent nearly four years in the United States Peace Corps working in beekeeping and wildlife management. While this work was not graduate work, it was quite important in my preparation for graduate school and life in general.

After Peace Corps, I matriculated at Shippensburg University for my master's degree in biology and then I was off to Michigan State University to study for my Ph.D. in entomology with a specialization in ecology and evolutionary biology.

After my Ph.D., I did my postdoctoral work in the vector biology lab at the University of Notre Dame, and by 1998, found myself here at MU.

### When did you realize that you wanted to be in the field of biology and entomology?

Probably when I was around eight, I would run around watching cabbage butterflies (you know those little white butterflies) lay eggs on clover plants and collect the clover leaves to observe the eggs hatching and raise the larvae to pupae and later to butterflies. I suppose that was the moment I knew I wanted to be an entomologist.

However, I had a keen fondness for other wildlife. For example, I kept snakes and turtles all my life. In fact, I'm the reason why the milkman stopped coming to our house in the late 1960s. After he found one too many snakes in the milkbox, he figured we could buy our milk at the store, so he stopped coming. Also, I've fly-fished and lived in streams and ponds since I was a little tadpole. So, I've had this passion for nature and aquatic ecology for a long time.

### What research project that you have worked on was your favorite?

It's hard, I am proud of most of them. Some of them didn't pan out but that is the name of the game in research. That is why they put the "re" in research. Prior to coming here, I worked primarily on a stream insect, a case-building caddisfly for my master's. I worked on *Anopheles* mosquitoes during my Ph.D. and my postdoc, where I was looking at larval feeding ecology. During my postdoc, I worked on overwintering ecophysiology of mosquitoes, that is, how they make it through the winter.

Coming here, there have been a large number of projects I've been involved in with our students. These projects have ranged from examining how macroinvertebrate communities adjust to stream restoration, conducting the first crayfish survey for the county since 1904, helping the state of Maryland determine which stormwater practices reduce mosquito populations, determining how algal growth and diversity can be used in death scene investigations, the list goes on and on.



BY DANIEL IRWIN, STUDENT EDITOR

**Which project are you most proud of?**

In general, the work I am quite proud of is work I share with collaborators from around the world. I have been fortunate to meet and work with some of America's, and frankly the world's, best scientists on some of these projects and that is most gratifying.

Specifically, I'd say work I am very proud of is what I am currently doing on a mycobacterial disease called Buruli ulcer caused by a mycobacterium called *Mycobacteria ulcerans*. This bacterium causes flesh-eating ulcers. My role in this work has taken me from West African countries such as Ghana and Benin to the southeastern coast of Australia; looking at the role of insects, specifically mosquitoes, in transmitting this bacterium. This work has been widely published, and it's also taken me to the World Health Organization (WHO) in Geneva to present some of our work. WHO is like Mecca for us medical entomologists. Our overall goal is to determine how people contract this bacterium, so if my contribution leads to the reduction of the suffering of people afflicted with this disease, well, it was time well spent.

I should also point out work I do in entomology and that is focused on forensic entomology (or how we can use insects in criminal and civil investigations). I'm often called in on homicide cases and have done quite a bit of research looking at aquatic organisms, specifically algae, and in some cases, aquatic invertebrates and how we can use them to determine how long a body has been underwater. [In one] particular case I was able to help exonerate a man off of death row and another man out of life in prison based on marks a crayfish left on a body. A few other cases stand out where my expert testimony helped convict the guilty individuals of murder.

The fact is though, the work I'm most proud of is the research I get to do with Millersville students. They are our legacy. They will replace us as scientists, if not here, somewhere else in the world. Currently, in my research lab, my students have focused their efforts in two areas of study. One area is examining microbiomes in different ecological communities and organisms, and the other area involves surveys of microplastics in the environment. My students do super work. They are dedicated, passionate and work very hard on top of an already demanding course schedule. They receive grants for their research, present their findings at local, regional and national level conferences, and some of them even publish their findings. Now that is something of which to be proud!

**In your opinion, why is student research an important part of a college education?**

The reality is—the world doesn't really give a hoot about grades. Now sure, in some cases they do, clearly, for example trying to get into medical or graduate school. One does need to have good grades to be competitive. But, for most students who do not choose that route, the reality is that employers want to know what is your passion, what lights you up—so they want to know what you did besides take classes in college.

The fact is that if everyone has taken similar classes, the question you have to ask yourself is, what is it that separates you from other graduates when you start to search for a job? In my opinion, research does that for you. Research separates students from others in the job market because it is something they do for the interest and because they are passionate about it, and that is what employers look for in future employees – the passion for the work.

**How can students get involved in research or gain experience in a field?**

In Biology, we have an amazing group of faculty, but the truth is, the campus is filled with faculty who are doing amazing research and providing incredible experiences for our students. There are many things students can do to improve their marketability, that is, to stand out among the job-hunting crowd. There are going to be many, many people applying for jobs and only so many openings to go around. So, for those students interested in the field of entomology, I would recommend doing internships, for example with State agencies, such as the Vector Control and Management programs with the PA Department of Environmental Protection, the PA Department of Agriculture, with consultant firms, and with stream ecology research centers.

If you are interested in going to graduate school, start doing research. The sooner you start to explore, the more experience you can gain. Determine what interests you. Go to the faculty webpage and look to see who is doing what in terms of research that interests you, and then go talk to the faculty member, and ask if they have opportunities for research.

For any student, the key is to diversify your portfolio through service or volunteering with non-profits, through club activity, and last but not least, through getting involved with research projects. College is more than coursework, it's about stretching your intellectual and experiential boundaries—that is what life is all about after all, isn't it? ♦

## MU ALUM PROFILES



**Eric Grove '87**, earned his bachelor's degree in computer science at Millersville University. Following his graduation, he was prepared to have to move far away from his hometown of York, Pennsylvania. Thankfully, Millersville's placement office suggested a small startup company in York. He decided to take the job, and the risk paid off in the end.

"In 1996, that small startup in York was acquired by a larger company in California, which later was acquired by an even larger company in England, then in France, and finally back to England. Pretty typical for the software industry," Grove said.

As his time with Schneider Electric progressed, he was promoted from a software engineer to a senior software engineer, then to a development manager, and finally, he became the director of development for a division of the company. Being promoted to a director position gave Grove the opportunity to oversee close to 100 engineers located all throughout the world.

Grove spoke on his time at Millersville University, saying "I liked that it was a small school in a small town. This gave it a better sense of community. I made some good friends there, some of which I am still in contact with today. They had a great computer science program given how new the field was at the time."

Continuing on, Grove had some great insight into how his opportunities were rooted in his time as an undergraduate student at Millersville. "I think the most important thing I learned at MU was not what I learned, but how I learned. In the software field, technology is constantly changing. The programming languages and systems I learned and used at MU aren't used much, if at all, but have now been replaced by newer technologies. The most important thing I learned was how to adapt to and pick up new technologies and keep pace in a field that is constantly changing."

In recent years, Grove has decided to pursue software technology in a more enjoyable way, focusing on small independent projects for himself and his close family and friends. Retiring at the end of last year, he plans to enjoy life and work on his passions on his own terms. ♦



**Erin Jones '18**, majored in meteorology, minored in mathematics and environmental hazards and emergency management, and graduated from the University Honors College. While attending Millersville, she participated in

several undergraduate research projects sponsored by the National Science Foundation, the NOAA Hollings Program and Millersville University. These projects examined topics including lake-effect snow, supercell thunderstorms and tornadoes, weather modeling and tropical cyclones; and together, they helped to spark Jones' interest in research.

After graduation, Jones completed a 16-week internship at Brookhaven National Laboratory where she researched updraft signatures in Argentinian thunderstorms.

She is now a first-year master's student pursuing a degree in meteorology at the University of Oklahoma and is supported by an American Meteorological Society Graduate Fellowship.

She has a particular research interest in data assimilation, which involves creating ways to optimally incorporate data from meteorological instruments and remote sensing systems—such as radars, satellites and the instruments attached to weather balloons—into weather models in order to aid in creating the best forecast.

After graduating with her Ph.D., Jones plans to continue her research in data assimilation in order to improve weather models. She believes that this is important as it will lead to better weather forecasts that can better assist with decision-making in the government and business realms as well as help keep the public safe during extreme weather conditions. ♦

BY DR. KIRSTEN BOOKMILLER

## COMMENTARY

## Discovering New Ways To Understand The World

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**Dr. Kirsten Bookmiller**, Professor of Government & Political Affairs

Many academic colleagues and students are often surprised to learn that as a professor of international politics, my research focuses upon disasters arising from natural hazards such as earthquakes and hurricanes. In fact, these events are major contributors to some of the 21st century's most pressing global policy challenges, including poverty, conflict, mass population displacement and human rights violations. It is now widely recognized, for example, that persistent drought conditions played a role in both the 2011 outbreak of the ongoing Syrian Civil War and the displacement of Central Americans making their way northward to the United States during the current migration crisis.

Numerous worldwide surveys within the private and public sectors place extreme weather as one of the most significant challenges to global stability in the coming decade. Climate change especially has made such episodes more frequent, more intense, and more costly than ever before.

Whenever any of us pursue scholarly inquiry—regardless of the field or whether as an undergrad or a senior academic—we engage in sense-making of the world around us. After successive large-scale crises such as the 2004 Indian Ocean Tsunami, the 2005 Hurricane Katrina, the 2008 Cyclone Nargis and Sichuan Earthquake, the 2010 Haitian Earthquake, and the 2011 Japanese “Triple Disaster” involving an earthquake, tsunami and nuclear meltdown in rapid succession, I turned my research attention to international disaster assistance.

As a Political Scientist, I was especially interested in how international and national politics, policy and law converged to influence the success of cross-border responses and discovering the means to make them more efficient, effective and accountable to affected populations.

In working at the intersection of the global and the national, politics and law, international humanitarian aid and domestic emergency management, I found fruitful new areas of inquiry. Having something “new” to say about a subject is a perennial and nagging concern of all who engage in scholarship. Initially, I worried that I was falling through the cracks between many disciplines.

Yet over time, I found my way and began authoring and co-editing a series of publications in disaster law and policy. The series have ranged from telling the little known story of United Nations’ (UN) adopted response protocols developed by local urban search and rescue teams to delving into one of the newest areas of international and national law known as disaster law.

Sometimes your scholarship will take you to literal and figurative places you could never have imagined. I’ve presented my research findings not only within academic circles, but also to the U.S. and Canadian federal governments, at the United Nations and to the International Federation of the Red Cross, among other audiences.

Even more rewarding is when MU students become a part of the journey. During the 2018-2019 academic year, Government, International Studies, Spanish, English and Emergency Management students joined me on a project assessing the current state of American, Canadian and Mexican disaster law in a period of accelerating extreme weather events impacting all three countries. The American Red Cross funded the project, and it will soon be distributed worldwide, appearing in English, French and Spanish.

After several years of analyzing assistance between countries, I have turned my research lens to national responses to disasters impacting the over 560 tribal and Alaskan Native communities in the U.S. and 630 First Nation, Inuit and Métis communities in Canada and the continuing need for indigenous-sensitive protocols. As with any fresh project, I am discovering new ways to understand the world and trying my best to do justice by the subject.

There are many other studies in the research pipeline, too. That is perhaps the most exciting (and frustrating) part about engaging in scholarship within a subject you feel so passionate about—there will always be more promising research leads than time to pursue them. ♦



# FACULTY-STUDENT COLLABORATION

## Focus on Bermuda



**Meagan Schulman '20**, University Honors College, Atlantic World Studies major and recipient of the MUSE Grant (Mentored Undergraduate Summer Experience) from Millersville University, conducted

research in Bermuda during the summer of 2019, under the direction of Dr. Clarence Maxwell.

The MUSE Grant provides funding for Millersville students in order to complete undergraduate research. For Schulman, this money gave her the opportunity to travel to Bermuda, the location of her undergraduate research, where she collected documents that could not be found anywhere else in the world. During her trip to Bermuda, Schulman accessed archaeological records, documents written in the 17th century and other transcribed documents that were helpful for her undergraduate thesis.

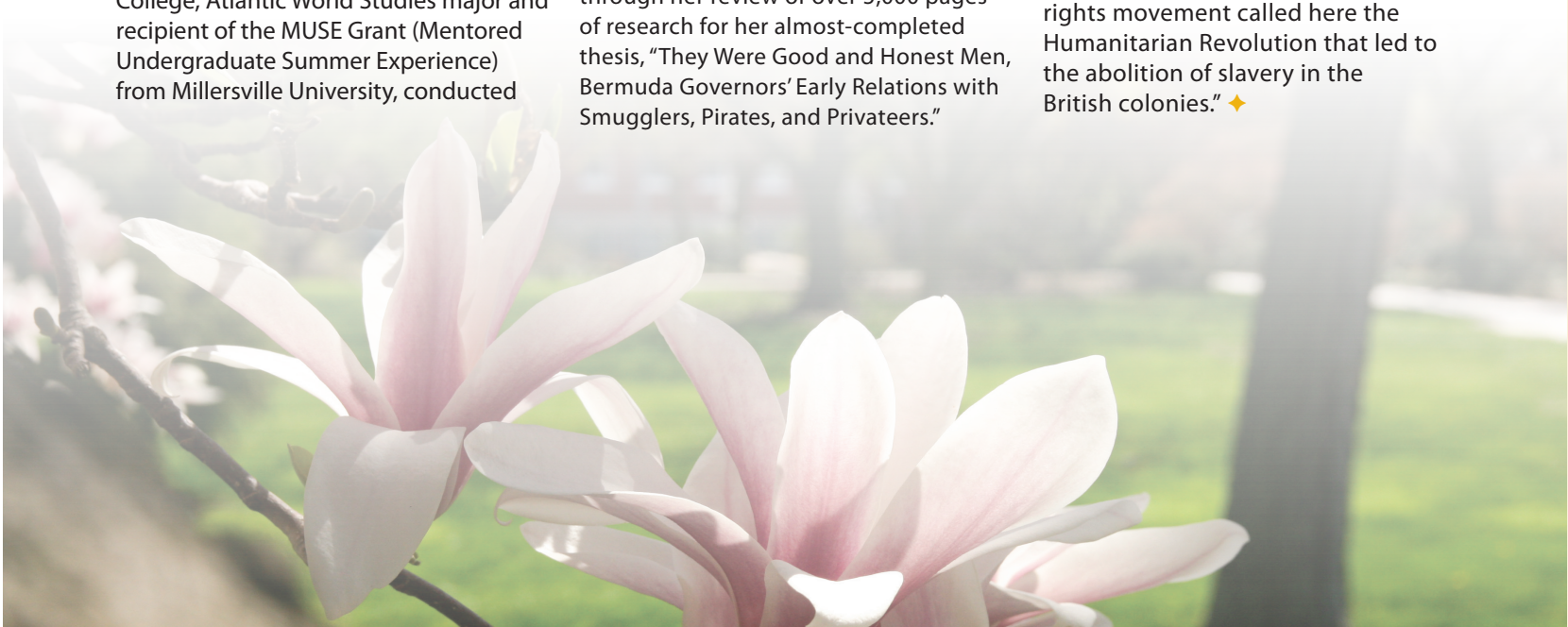
Maxwell added, "The internship at the National Museum of Bermuda provided an opportunity for Schulman to work with and interact with two former Millersville University students who were, at the time of the internship, working on their doctoral degrees [Abigail Gruber and Alexander Goodrich]. This allowed opportunities for mentorship."

Returning from this trip, Schulman acquired knowledge of museum preservation and the process of transcribing historical documents through her review of over 5,000 pages of research for her almost-completed thesis, "They Were Good and Honest Men, Bermuda Governors' Early Relations with Smugglers, Pirates, and Privateers."



**Dr. Clarence Maxwell**, assistant professor of history at Millersville University, shares the same passions as Schulman in regard to Bermuda's history. Maxwell recently published a book in collaboration with two other authors, Dr. Theodore Francis Jr. of Hutson Tillotson University and Alexandra Mairs-Kessler.

Mairs-Kessler is a history graduate of Millersville University. As explained by Maxwell, "'Prudent Rebels: Bermudians During the Age of Revolution' discusses the role Bermudians played in and the effect of the Age of Revolution (for our purposes, 1775-1834), the British American Revolution, the Saint-Domingue Uprising and Haitian Revolution, and the abolition/civil rights movement called here the Humanitarian Revolution that led to the abolition of slavery in the British colonies." ♦



# STUDENT PROFILES

## Student Research Opportunities



Molly McDyer, Hannah Deboer and Chris Coplin

**The Research Fellows Program** at Millersville University aims to “foster a community of practice where creative and innovative ideas are freely exchanged and shared over the course of three semesters.” Run through McNairy Library, the Fellows Program selects students through an application process to produce undergraduate research they are proud of. Some of the skills obtained through this opportunity include enhancing critical research and thinking skills, developing communication and presentation skills, and preparing for future employment/graduate school. Four students at Millersville University were interviewed on their Fellows project and the methodology used to execute their research.

**Chris Coplin '21**, music industry, is conducting his research around jazz's influence on rap music. He aims to show the connection between jazz and rap music and the carryover that occurs between the two. Coplin's methodology is interview-based, focusing on talking with beat makers in the field of music along with analyzing the legal aspects of the industry.

**Molly McDyer '21**, music education, is working on researching the efficacy and success of music therapy in correspondence with eating disorders. McDyer is completing a content analysis of personal accounts of patients diagnosed with eating disorders who underwent music therapy as a method of treatment within the last 10 years.

Her methodology includes a narrative analysis through blogs, forums and discussion posts. She plans to analyze emerging themes and apply them to her hypothesis.

**Paul Mento '21**, music industry, took part in the Fellows program to help him create a surround sound system focusing on binaural audio, something that has never been recreated outside of headphones. Using his knowledge of psychics and the “wave equation,” Mento was able to experiment on people and see results in his design. His project is showing great promise and is a huge breakthrough at Millersville University.

**Hannah Deboer '21**, sociology, is focusing her research around displacement as a form of social violence toward Lakota women being moved from rural to urban areas. Deboer is focusing on the mental health consequences tied to removing these women from their tribe and home and what is being done to combat it. She hopes to find some results that can help the lives of these women in need. ✦



**Michael Skros '22**, University Honors College, environmental hazards and emergency management and geography, interned this

past summer with Pennsylvania State Representative Danielle Friel Otten in Exton, Pennsylvania.

He also volunteered with the Red Cross as a national dispatch specialist in Philadelphia. These experiences taught him real-life skills and helped him discover his passion for public service.

As a dispatcher, Skros took calls from victims of fires and natural disasters and recorded their information to pass along to their local chapter. He commuted into the City of Philadelphia once a week during the summer to work from Red Cross' headquarters. Working in the headquarters allowed him to network with other employees and volunteers and to gain insight into how a non-profit disaster relief organization operates.

“This experience was extremely rewarding because I was able to help people experiencing personal tragedy while also learning important communication skills required for emergency management,” Skros said.

During his internship with Representative Otten, he organized and executed legislative canvassing, planned events, led community outreach efforts and worked on documents and projects regarding public safety.

“I learned valuable communication and organizational skills in addition to learning more about the legislative process,” he said. He took a special interest in the representative's work on pipeline safety legislation, which inspired his final project in his Geographic Information Systems class during the fall 2019 semester. ✦



# SCHOLARSHIP IN RETIREMENT

## *Pennhurst and the Struggle for Disability Rights*



**Dr. Dennis Downey**, professor emeritus of history, co-edited a book titled “Pennhurst and the Struggle for Disability Rights” set to be published in June 2020. Using a blend of essays and first-hand testimony, it explores the controversial history of Pennhurst State School and Hospital, a state-operated institution for the incarceration of people with intellectual and developmental disabilities.

Downey was kind enough to provide a sneak-peak into what led him to the idea for this book and what it contains. When asked for comments about his book and the ideas behind it, Dr. Downey said:

“The idea of writing a book on Pennhurst originated in 2010 when a small group gathered at the Public Interest Law Center in Philadelphia to support a state historical marker dedicated to the controversial history of Pennhurst State School and Hospital. My role was to help write the marker text. As discussion developed, I instinctively realized that an authoritative history was needed and I set about the task of organizing the effort. I wrote the original prospectus that secured the book contract, organized the outline of chapters and defined the topics that are addressed. At some point in the research and writing, I asked Dr. Jim Conroy to join me as co-editor, chiefly because of his expertise and his

long-standing relationship with some of the contributors. Although we are called “editors”—we did edit the manuscript, including rewrites—Jim and I are the principal authors of most of the book’s chapters. Needless to say, it has been a long process.

“My intention from the beginning was to tell the story and to include the perspectives of individuals who have been involved in the disability rights movement. The book rests on solid original research and the memories of those who lived the experience. More than a historical narrative, the book touches on a variety of topics: from eugenics to historic preservation controversies, abuse and medical experimentation, legal arguments that went to the US Supreme Court, oral interviews, and not least of all, the everyday experiences of people who lived at Pennhurst over nearly eight decades. Pennhurst is so much more than the Halloween fright-night phenomenon it is now known for.

“What did I learn? This research, articles and the book that have come out of it has been a new departure for me, though I am personally acquainted with living with a disability. I was challenged to learn new subject matter and a new terminology, and to place the story in a meaningful context of modern American social development. The rise and fall of institutionalization is one of the great unknown narratives in American history, and yet hundreds of thousands of Americans—and millions more around the globe—have been affected. It is a case of the past as a prologue to our current policy debates over disability rights and services. History is something that happens to people, I like to say, and this is good, complex and controversial history at its best.” ♦

## NEWSLETTER STAFF



**Student Editor: Daniel Irwin** is a sophomore at Millersville University and is majoring in Writing Studies. He is a member

of the Millersville University Honors College and serves as the vice-president of the Millersville University Fencing Guild. Daniel is also a 2019-2020 Walker Fellow within the Walker Center for Civic Responsibility and Leadership. This is his second semester as a student editor for the University Research Newsletter. ♦



**Student Managing Editor: Phoebe Tanis** is a sophomore at Millersville University who is working to achieve a BSE

in English. Writing and editing are her passion, and she works at the Writing Center in the McNairy Library assisting students with both of these tasks. She is the Community Building Chair of the Honors College Student Association and actively participates in small clubs around campus. This is her third semester serving as a student editor for the University Research Newsletter. ♦



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