



Annual Meeting & ToxExpo
VIRTUAL EVENT • MARCH 2021

SOT Undergraduate Educator e-Newsletter

Volume 11, February 2021

Larissa Williams Receives the 2021 SOT Undergraduate Educator Award

Larissa Williams, PhD, has received the 2021 SOT Undergraduate Educator Award for her commitment to and creativity in fostering the toxicology education of undergraduate students.

Dr. Williams received her PhD in environmental toxicology from North Carolina State University in 2010 and performed her postdoctoral training at Woods Hole Oceanographic Institution (WHOI). She currently serves as an Associate Professor in the Bates College Department of Biology, where she incorporates toxicology into her biology classroom and laboratory.



The mission of Dr. Williams's research program is to foster discovery, innovation, and scholarship by undergraduates in molecular biology, developmental biology, and toxicology. Since arriving at Bates College in 2012, Dr. Williams has been the architect of seven new courses and has provided research opportunities for 36 students during the academic year and 21 students during the summer. To accommodate a wide range of students whose interests differ, her lab offers a variety of molecular-based projects, ranging from zebrafish to environmentally relevant organisms. Dr. Williams also has actively recruited students underrepresented in STEM for research experiences in her lab, and as a result of these efforts, about half of her students each year come from these backgrounds.

Dr. Williams has wholeheartedly embraced the teacher-scholar model; her involvement with student co-authors demonstrates her deep commitment to engaged student learning beyond the classroom. During her career at Bates College, Dr. Williams has published six peer-reviewed journal publications with 18 undergraduates as co-authors. Her students' work also is presented at regional and national conferences, providing students with valuable presentation experience.

Since joining SOT as a graduate student in 2010, Dr. Williams has been a main contributor to several undergraduate-focused activities. In addition to volunteering as a mentor during the Committee on Diversity Initiatives (CDI) Undergraduate Diversity Program, Dr. Williams has served

as a member and Chair of the Undergraduate Education Subcommittee. She also is very active within the Northeast Regional Chapter (NESOT). In 2017, Dr. Williams and a colleague organized an undergraduate program at the NESOT Regional Chapter meeting, the success of which led Dr. Williams to continue as an *ad hoc* member of the Undergraduate Education Subcommittee, tasked with increasing undergraduate activities at Regional Chapter meetings. Her efforts have been very effective, and other Regional Chapters have begun looking at the model created within NESOT to help increase undergraduate participation in their chapters.

Currently, Dr. Williams is the Co-Chair of the SOT Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) Committee. Through this role, she works to ensure that the partnership with Regional Chapters and CDI continues and serves as a volunteer point person for colleges and universities that were part of the Undergraduate Consortium Task Force. In addition to her leadership within FUTURE, Dr. Williams is on the SOT Nominating Committee and is a Councilor for NESOT and the Molecular and Systems Biology Specialty Section.

Question & Answer with Larissa Williams

The great state of Maine boasts of many things; its long rocky Atlantic Coast with frigid waters yet yummy lobsters, its being the home of two former US Vice Presidents (Hannibal Hamlin and Nelson Rockefeller), its beaches, lighthouses, pine trees, moose sightings and, of course, Acadia National Park, and delicious blueberries. Now Maine can boast of yet another achievement, its being the home to both Bates College and to Professor Larissa Williams, the newest recipient of SOT's prestigious Undergraduate Educator Award! Congratulations, Professor Williams!

When not in the lab or classroom reaching toxicology in her classes, Larissa is highly active in promoting undergraduate toxicology not just in the great state of Maine, but also regionally through NESOT and nationally through SOT itself (e.g., as the current co-chair of the FUTURE Committee). Dr. Williams graciously accepted our request for a Q & A for this newsletter.

Question 1: Please describe your toxicology journey from student to faculty member.

Larissa: When I was a kid, I wanted to be a veterinarian. However, after losing my horse the second semester in college I realized that I couldn't handle pet death well. I found myself lost. However, that summer I was offered a toxicology internship at Dartmouth Medical School and learned about cytochrome P450s for the first time. I was hooked on toxicology, but didn't like working with rodents. In the next school year I took a marine biology course and realized that I could combine my newfound love of toxicology with marine biology. That next summer I did just that at the Duke University Marine Lab (DUMML). I took classes and worked with Dr. Dan Rittschof on antifouling agents and snails. I loved DUMML so much that I returned the next summer to work on my senior honors thesis with Dr. Patricia McClellan-Green on the use of clams as biomonitors in

contaminated creeks. After having spent two summers in North Carolina, I realized I wanted to stay in the state for graduate school and landed in the Department of Environmental and Molecular Toxicology at NC State. However, at the end of my PhD, I started missing the northeast where I grew up which led me to explore my options as a postdoc back up north. I contacted Dr. Mark Hahn at the Woods Hole Oceanographic Institution (WHOI) who later became my postdoc advisor. In this postdoc I switched from estuarine fish to freshwater fish and learned the developmental toxicology of zebrafish. In my second year at WHOI I applied for and got my faculty position at Bates.

Question 2: In a few sentences, which is difficult to do, please tell us about your research.

Larissa: I study how chemicals affect development, with a focus on chemicals that alter the delicate redox balance that exists in developing animals. We are particularly interested in the role of transcription factors in the bZIP family, like Nrf2, in responding to changes in redox balance caused by chemical exposure.

Question 3: What has serving on the FUTURE Committee meant for you?

Larissa: Being a member of the FUTURE Committee has allowed me to work with incredible colleagues on topics important to toxicology education and training. For example, the ability to design and deploy our Regional Chapter engagement program has meant that we can reach many more undergraduate students around the country and introduce them to toxicology. In the end, the major goal in everything I do with FUTURE is to make sure that we provide opportunities to students to join our wonderful toxicology community.

Question 4: What are some of your biggest challenges in teaching toxicology to undergraduates and capturing their interest?

Larissa: I think the major challenge is making sure they know that it is a field of study. Once I introduce them to how interdisciplinary the field is, I often can capture their interest and attention. I think we are well positioned as a field to recruit students with a broad range of interests--we just need to tell them about it!

Question 5: Which was your most memorable SOT meeting?

Larissa: Each SOT meeting has been special, but I think as my community of colleagues grows the more fun the meetings become. I would say the last meeting in Baltimore was fantastic because I

was able to meet up with colleagues from all parts of my career, enjoy the company of friends, and introduce my research technician and student to my little community of folks. It was great!

Question 6: Would you be willing to share some thoughts regarding how to increase diversity and inclusivity in the field of academic toxicology?

Larissa: As a white woman the most important thing I did to start increasing diversity and inclusivity in my academic field was to interrogate my own whiteness and privilege. I also started reading a lot of literature and books on whiteness, white supremacy, and racism to understand the history that has gotten us to this moment. I have engaged actively in intense diversity, equity, and inclusion (DEI) training on my campus, joined reading clubs on DEI in STEM, and participated actively in my HHMI leadership team on campus. Once I began to understand the problem and my part in it, I was able to start to generate solutions. These solutions span from individual actions I take to promote and support the success of all students in my lab and classroom to interrogating and changing systems of racial oppression on my campus.

Question 7: Would you be willing to share some thoughts regarding the challenges that women in the field of toxicology face today and share some advice on how you continue to achieve despite the many claims upon your time? Are there any resources or networks you can recommend as good support for new faculty who are looking to contribute to the greater good through scholarship?

Larissa: I have been really lucky to be well supported in my career from undergraduate to postdoc as a woman in science. I think the most challenging thing for me was when I wanted to get pregnant—which happened as I was getting tenure. As someone who works on chemicals that are potential teratogens, I decided to stay out of the lab from the time we started trying to have a baby through the end of breastfeeding. All in, that was almost two years of my life without access to my lab. I was lucky at the time to have a great research technician who kept the lab going and students who understood my physical limitations. I am also blessed with several female colleagues at Bates who understood my constraints. Prior to my pregnancy I developed a robust plan to keep things going in the lab and keep manuscripts coming out so there wouldn't be a gap in my CV. I would say to anyone who finds themselves in that same place to reach out to colleagues to get their support and make sure that you have a support system within and beyond your institution.

We thank Dr. Larissa Williams for taking the time to share with us!

Plan Your Time at the SOT Annual Meeting!

[On-line Planner](#)

[Meeting App](#)

SOT Annual Meeting Information

Complementary Registration for Non-SOT Member Faculty

A limited number of complementary registrations are available for undergraduate educators who are not currently members of SOT. Submit an [application](#) by February 26.

Annual Meeting Registration Fee Waivers for Undergraduates

Undergraduate students may request an SOT Annual Meeting and ToxExpo registration fee waiver by completing a meeting [Registration Form](#) and sending it with a copy of their student ID to the attention of Jim Dailey, Meeting Registrar.

Sessions for Educators (All times are Eastern Time)

Friday, March 12

- UEN Diversity Equity and Inclusivity Workshop 3:00 pm-4:30 pm

Wednesday, March 17

- Education-Career Development Session: Innovation in Toxicology Training during Summer Undergraduate Internships Wed. March 17, 2:45 pm-4:05 pm

Chair: Michael Humble, NIEHS

Co-Chair: Lauren Aleksunes, Rutgers, The State University of New Jersey

Establishing a pipeline for the next generation of scientists is critical for the advancement and expansion of toxicology. This session aims to provide short talks by successful summer program directors and principal investigators from academia, government, and industry. Topics that will be highlighted include innovations in recruitment, resources, programming, networking, training, diversity and inclusion, industry internships, and social enrichment. As programs have adapted to virtual training as a result of the COVID-19 pandemic, speakers will describe innovative approaches to deliver engaging and meaningful experiences online and how these initiatives may have long-term value in reaching students in remote locations across the globe. The session will include a moderated panel discussion of various approaches to recruitment, mentoring, team building, networking, presentation, assessment, matriculation into PhD programs, and long-term tracking.

Welcome and Introduction, Lauren Aleksunes

2:45 pm-2:50 pm ET

Recruiting Strategies for Place-Bound Undergraduates Interested in Environmental Health Science, Karen Watanabe

2:50 pm-2:55 pm ET

“Lunch and Learn” Sessions to Explore Toxicology Research and Careers, Laura Schnackenberg

2:55 pm-3:00 pm

Treat Them All the Same DIFFERENTLY!, Christine Curran

3:00 pm-3:05 pm

An Umbrella Program: Braiding External Financial Resources, Shu-Yuan (Demi) Cheng

3:05 pm-3:10 pm ET

Stepping Out Inside: Field Trips to Explore Toxicology, Jeffrey Field

3:10pm-3:15 pm ET

Social and scientific Enrichment: Keys to a Successful Summer Research Internship, Ken McMartin

3:15 pm-3:20 pm ET

They Don't Know What They Don't Know, Christopher Hayden

3:20 pm-3:25 pm ET

Panel Discussion, Michael Humble

3:25 pm-4:05 pm ET

Wednesday, March 24

- Education, Ethical, Legal, and Social Issues Poster session, Wed. March 24, Author attended: 1:00 pm-2:45 pm. Come to learn about the latest educational innovations in these areas.

Sessions for Undergraduate Students

Undergraduate Activities

The CDI and FUTURE Committee have organized the following activities to provide more information about toxicology, assist with career planning, and encourage networking with graduate students and toxicologists.

Undergraduates who have registered for the Annual Meeting will use [this Undergraduate Activities form](#) to preregister and reserve a place to participate in each of these activities. **Preregistration for each event is required** so that the appropriate breakouts can be configured.

Deadline to sign up: February 26, 2021

What is Toxicology and Why Should I Care: Live Introduction to Toxicology Presentation and Q&A

Speaker: Marquee King, USDA, Beltsville, MD

Students will learn about toxicology and careers related to the discipline. The session opens with a welcome and then the presentation by Dr. King will introduce the students to the breadth and importance of toxicology. Participants will have the opportunity to ask questions regarding toxicology in general. [Preregistration](#) Required

- Saturday, March 13, 2021 2:30 pm–3:45 pm ET

Ins and Outs of Graduate School in Toxicology: Insights into Admissions

This live session will provide students the opportunity to meet and engage with experts on graduate study in toxicology in small discussion groups. Each will be moderated by a graduate student and a graduate program advisor. Students will learn tips about applying for and succeeding in graduate school, gain insights into admissions, and get answers to any questions they might have about toxicology graduate school and programs. [Preregistration](#) Required

- Saturday, March 20, 2021 12:30 pm–1:30 pm ET

Interactive Case Study for Undergraduate Students: Metal Levels in Whales from the Gulf of Maine: A One Environmental Health Approach

Facilitators: Mindy F. Reynolds, Washington College, Chesterton, MD; and John P. Wise, Sr, University of Louisville, Louisville, KY

This special introduction to environmental and ecotoxicology includes an opportunity to explore and interpret real data in small groups. After a brief presentation by Dr. Wise on research techniques and how sampling of whales is conducted, participants will analyze toxicology research data using the case study “Metal Levels in Whales from the Gulf of Maine: A One Environmental Health Approach,” lead by Dr. Reynolds. [Preregistration](#) Required

- Saturday, March 20, 2021 3:00 pm–4:15 pm ET

Toxicology Career Roundtables

Undergraduate students will meet in small virtual discussion groups with SOT members who are employed in different areas of toxicology, learn what their career paths were like, and explore how these toxicologists manage work-life balance. Each group will meet with three toxicologists—one from academia, one from government, and one from industry or consulting. These toxicologists

will describe what working in their employment sector is like from their perspective and compare the different types of work. Students will gain insights into where they might find their best balance and how to use their interests and aptitudes pursuing a career in toxicology.

[Preregistration](#) Required

- Wednesday, March 24 4:30 pm-5:30 pm ET

Undergraduate Networking with Graduate Students

In this informal virtual session undergraduates will network in small groups with peers and graduate students to learn more about graduate school and graduate student experiences. Each group of undergraduates will network sequentially with several teams of graduate students. Students can peer into their toxicology future by hearing directly from graduate students what graduate school is like. [Preregistration](#) Required

- Thursday, March 25 2:45 pm-3:45 pm ET

Time with Academic Program Directors: Graduate School Virtual Career Fair

Students will meet directly with representatives from specific academic toxicology programs to discuss the merits of each graduate programs, support available, and application requirements. More information is pending.

Check the schedule for other Virtual SOT Annual Meeting activities that are open to and of interest to undergraduate students. These do not require preregistration.

- Scientific Sessions and Posters
- Tox ShowDown Monday, March 22, 4:30pm - 6:30pm
- Student/Postdoc Mixer
- Regional Chapter, Special Interest Groups, and Specialty Section Receptions

Undergraduate Award Posters

The following are posters presented by SOT undergraduate award recipients. Lead author indicated in parentheses if not the award student.

SURA=SOT Undergraduate Research Award; UDP=Undergraduate Diversity Program; PJG=Perry J. Gehring Diversity Award; RC4=RC Undergraduate Award

March 16

11:15 am-1:00 pm; #2007 Lack of Transcription Factor EB Inhibits Alcohol-Associated Liver Carcinogenesis. Madeline Hlobik, University of Kansas Medical Center, SURA

1:00 pm-2:45 pm; #2077 Developmental Behavioral Alterations following Lead (Pb) Exposure in the Zebrafish Model System. Jenny Chen, Purdue University, SURA

March 17

11:15 am-1:00 pm; #2142 Late Treatment of Acetaminophen Toxicity with N-Acetylcysteine Inhibits Liver Regeneration. Matthew Jaeschke, University of Kansas Medical Center, SURA

March 18

11:15 am-1:00 pm; #2257 Farnesoid X Receptor Regulates Immune Cell Activation and Recruitment to the Lung following Exposure of Mice to Nitrogen Mustard. Tanvi Banota, Rutgers, The State University of New Jersey, SURA

11:15 am-1:00 pm; #2247 Investigation of the Intravascular Behavior of the Formulated Cyanide Antidote Candidate Dimethyl Trisulfide. Kyler Kelley, Sam Houston State University, UDP

1:00 pm-2:45 pm; #2327 Shark Pollutant Exposure and Its Relation to Both Human and Shark Health: A Systematic Evidence Map. Taylor Cedillo (Krisa Camargo), Texas A&M University, UDP

March 22

11:15 am-1:00 pm; #2396 Antimicrobial Agent Cetylpyridinium Chloride Inhibits Immune Mast Cell Function. Bailey West (Bright Obeng), University of Maine, SURA

11:15 am-1:00 pm; #2399 Antimicrobial Agent Cetylpyridinium Chloride Interferes with Phosphatidylinositol 4,5-Bisphosphate-Protein Interactions in Influenza Infection Fibroblast Model and in Mast Cells. Bailey West (Sasha Weller), University of Maine, SURA

11:15 am-1:00 pm; # 2448 Assessing Adult Learning and Memory in Three Genotypes of Mice Exposed to Benzo[a]Pyrene during Early Brain Development. Katelyn Clough, Northern Kentucky University, SURA

11:15 am-1:00 pm; #2456 Behavioral Alterations following Exposure to a Lead and Atrazine Mixture during Early Development in the Zebrafish Model System. Anusha Kotapalli, Purdue University, SURA

11:15 am-1:00 pm; #2517a Vaping Inhalation Consequences on Placental and Pup Weight to Determine the Health Effects of Exposure in Maternal Gestation. Kallie Schafner, West Virginia University, RC4

1:00 pm-2:45 pm; #2536 Morphometric Feature Selection for the High-Throughput Image-Based Chemical Phenotyping of Per- and Polyfluoroalkyl Substances. Nicholas Cemalovic, University of Michigan School of Public Health, SURA

March 23

11:15 am-1:00 pm; #2704 Prenatal and Postnatal Exposure to Polychlorinated Biphenyls Alter Hormone Receptor Expression in the Rat Ovary. Kathy De La Torre, University of Illinois at Urbana-Champaign, SURA

11:15 am-1:00 pm; #2721 Effect of Maternal Pulmonary Exposure to Nanopolystyrene and Uterine Position in the Fetal Development Pattern of Rats. Andrés Rivera Ruiz, Universidad Ana G. Méndez Gurabo, UDP

11:15 am-1:00 pm; #2652 Investigation of the Protective Effects of Nicotine in Pesticide-Induced Neurodegeneration in the Model Organism *C. elegans*. Alex Svetlik, King University, PJG

1:00 pm-2:45 pm; #3074 Impact of Manganese Exposure on Mood in Welders: A Longitudinal Study. Khunsha Ahmed, Purdue University, SURA

March 24

1:00 pm-2:45 pm; #3062 Diversity Initiatives in Undergraduate Research and Education: Our Journey towards Success in Meeting the Goals of Group 2 of CDI-UDP 2020 Cycle. Taylor Cedillo (Tirupapuliyur Damodaran), North Carolina Central University, UDP

1:00 pm-2:45 pm; #3070 The Role of Environmental Stressors on a UNC13A Single Nucleotide Polymorphism in *C. elegans* and Motor Neuron Degeneration: A Possible Cause of Sporadic Amyotrophic Lateral Sclerosis. Midori Flores, St. Mary's University, UDP

March 25

11:15 am-1:00 pm; #3163 Dioxin Disrupts Thyroid and Glucocorticoid Hormone Induction of *klf9*, a Master Regulator of Frog Metamorphosis. David Han, Kenyon College, SURA

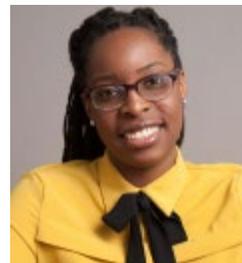
Science of Mentorship Podcast

The Board on Higher Education and Workforce at the National Academies of Sciences, Engineering, and Medicine has produced a podcast called “The Science of Mentorship.” This 10-part series delves into the personal stories and positive/negative mentoring experiences of top United States STEM researchers. Their experiences can be used to inform and empower mentors to be the best mentoring version of themselves so that we effective and responsive mentors to the next generation of scientific leaders. More information about the podcast series can be found [here](#).

Join a Discussion of Diversity, Equity, and Inclusion in Undergraduate Toxicology Education

March 12, 3:00 PM-4:30 PM ET [Preregister here](#)

SOT has a commitment to embracing diversity and optimizing inclusion. As undergraduate educators we play an essential role in the development of future toxicologists, many of whom are lost in the pathway due to structures and practices that disproportionately affect students who are “PEERs—persons excluded because of their ethnicity or race” (a definition used by David Asai of Howard Hughes Medical Institute). Nicollette Mitchell, Director of Equity and Education at Bates College, will be facilitating a discussion about diversity, equity, and inclusion (DEI) among toxicologists who interface with undergraduates in the classroom, lab, and workplace. While discussions around equity, inclusion, and antiracism may be happening on our individual campuses or workplaces, we believe the SOT Annual Meeting is a powerful opportunity to share and reflect on our own practices and experiences to enhance the educational experiences of all our STEM students. Following a brief introduction about the importance of DEI, participants will be assigned to smaller groups to discuss where they are situated in their institution, the resources of that institution, and their ability to create change (and perhaps what that change might look like) in the DEI space. At the end of those discussions, all participants will come back together to report out about these conversations. Participants will leave having thought about their own positionality within the DEI space and hearing about that of other educators and their institutions.

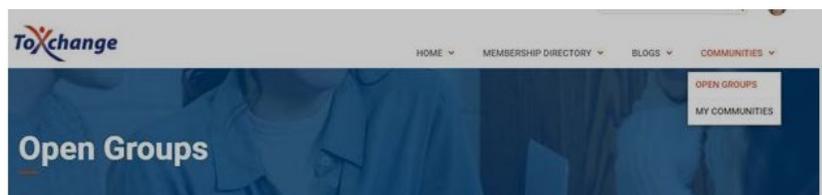


Nicollette Mitchell

ToXchange Undergraduate Educator Network

ToXchange is an excellent venue to exchange ideas, learn about resources and opportunities, and receive SOT announcements for undergraduate faculty. Join ToXchange to harness the power of our UEN network!

1. Log in to ToXchange <https://toxchange.toxicology.org/home>
2. Click the “Communities” tab
3. Select “Open Groups”
4. Find “Undergraduate Educator Network” and select the “Join” button



Be sure to tell
your colleagues
and friends!!

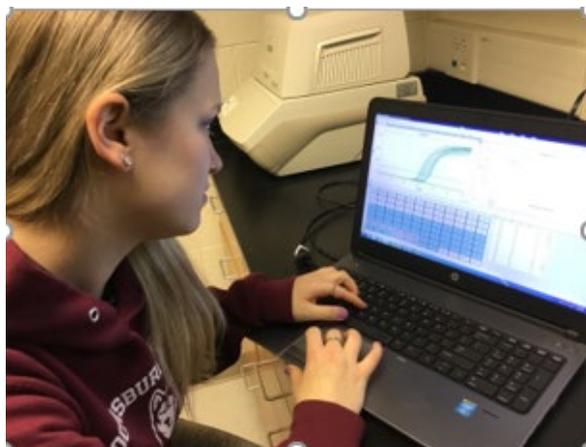
SOT Undergraduate Faculty Grant Applications Due March 26

FUTURE Committee sponsors two grant programs to support professional activities of undergraduate faculty with awards of up to \$1,500 each. A maximum of five (5) grants are available to support undergraduate toxicology research experiences and a maximum of two (2) awards are available for faculty professional development related to undergraduate education.

More Information:

[Undergraduate Faculty Research Grant](#)

[Undergraduate Faculty Development Grant](#)



2020 Summer Internships Demonstrate Creativity and Resiliency

SOT provides matching funding for hosts of undergraduate internship programs. This is an important part of the FUTURE Committee's efforts to engage undergraduates in toxicology early, anticipating that they will continue to study and work in the field. A dedicated corps of toxicologists leads internship programs across the country every summer, providing students with a robust experience in research. Even with the pandemic challenges of the summer of 2020, the six funded programs were able to host 20 interns in a mix of in-person and virtual experiences. The following blogs outline what these programs were able to do, despite the unique obstacles, to provide outstanding experiences for student participants. Two of the SOT-supported interns, Matthew Jaeschke and Madeline Hlobik, both of whom participated in the program at the University of Kansas Medical Center, were selected for SOT Undergraduate Research Awards. We hope you will take the time to read about the creativity and perseverance of the program hosts.

[Southern University and A&M College Interns Conduct Bioinformatics Research](#)

[John Jay College Braids Undergraduate Intern Support for Successful FUTURE](#)

[SURFing in a Pandemic? SOT Funding Contributes to a Successful Undergraduate Research Fellowship Program](#) (University of Kansas Medical Center)

[Takeaways from a Virtual Undergraduate Internship: Top Three Engaging Activities](#) (Rutgers, The State University of New Jersey)

Your Future, in the PALM (Network) of Your Hand!

The Promoting Active Learning and Mentor (PALM) network is a National Science Foundation–funded program that employs best practices to foster high-quality, evidence-based, undergraduate science education. Develop your abilities to teach lecture courses using active learning by working with an experienced active learning instructor. PALM will fund up to \$2,000 for Fellows to visit, observe, and work with a mentor. Fellows and mentors will each receive up to \$1,000 (reimbursed travel receipts) to present their work and its outcomes at a meeting of a professional society or a national group focused on teaching and learning



PALM Fellows can be postdocs aiming for a career that involves undergraduate teaching or they may be faculty at almost any stage of their academic career, from any kind of post-secondary institution. PALM particularly welcomes participation from instructors at two-year institutions and minority-serving institutions. **You do not have to be a member of American Society of Cell Biologists (ASCB) to apply.** For more information, including eligibility requirements, application details, and to learn about how to be paired with a mentor if you don't have one in mind, visit <https://palm.ascb.org/>. Apply to be a PALM Fellow today!! **2021 Deadlines:** January 30, April 30, July 30, and October 30. The future is in the PALM of your hand. ;)

Apply to be a PALM Fellow



For more information, including eligibility requirements, application details, and to learn about how to be paired with a mentor if you don't have one in mind, visit

palmnetwork.org

Undergraduate Educator Network Webinars

Organized by the FUTURE Committee, UEN Webinars disseminate teaching strategies for undergraduate toxicology. All webinar materials are available on the [UEN Webinar page](#), including a 2018 UEN webinar dry labs in toxicology and a 2019 UEN webinar about the Undergraduate Toxicology Learning Framework. Please contact Dr. [Mindy Reynolds](#) or Dr. [Larissa Williams](#) with any suggestions or ideas.

The 2021 spring webinar is slated for February 23, 2021, and is titled “Publishing Teaching Resources for the Toxicology Professor: From Service to Scholarship.” More information can found on the next page or the [UEN Webinar page](#).

SOT Partners with LifeSciTRC and CourseSource to Highlight Toxicology Teaching Materials

SOT has officially partnered with two online resources for learning materials for undergraduate toxicology courses: Life Sciences Teaching Resource Collection (LifeSciTRC) and CourseSource. Both consist of partnerships between a number of scientific societies coming together to aid undergraduate educators in all subject areas. Indeed, many of the resources are cross-disciplinary, and this collaborative approach allows for easier sharing of resources across disciplines. Furthermore, SOT members can submit their own teaching resources to either collection and have their submissions peer reviewed by SOT-endorsed editors for approval. Both resources are also fully integrated with Vision and Change, the international movement focused on transforming education in the biological sciences. SOT contributed to Vision and Change by producing the Undergraduate Toxicology Framework, published in *Toxicological Sciences* and at CourseSource.

LifeSciTRC and CourseSource have somewhat different goals. LifeSciTRC serves as a repository for anything related to teaching, including syllabi, course schedules, classroom activities, recorded lectures, and much more. Authors are asked to identify characteristics such as target population, type of resource, and other metatags that enable easier searching and categorization of the resources. Right now, SOT has approximately 10 items available and is transferring over items previously published on the SOT website. CourseSource serves two roles: it is the repository for Vision and Change-aligned undergraduate learning frameworks, and it is a peer reviewed journal for publishing teaching activities. CourseSource has more strict requirements for publication but its resources are closely aligned with what might be considered a traditional peer reviewed submission in education. In both cases, the resources are published under the Creative Commons license, allowing the author to retain copyright and republish elsewhere if interested.

Sponsored by the FUTURE Committee, the upcoming webinar “Publishing Teaching Resources for the Toxicology Professor: From Service to Scholarship” at 12:00 noon ET on February 23 will compare and contrast these new SOT resources. [Register here](#) for the webinar. The webinar will also be recorded if you miss it, and both LifeSciTRC and CourseSource have abundant resources and instructions on how to submit. We hope we’ve inspired you to submit to the collection!

Google Forms to Simplify Recommendation Letter Writing

While spring semester is just underway, we are already deep into “recommendation letter season.” Between grad school recommendation deadlines January 1, summer program letters in winter, and medical school recommendations in the spring, many of us routinely submit many dozens of recommendations annually, each to a program with a different deadline, evaluation format, and submission platform. Opportunities for error abound, compounded as requests flood our inbox, forms appear under our doors, or needs are communicated in hallways or during the rush at the end of class.

Combining ideas from numerous colleagues over the years, FUTURE member Wade Powell, Professor of Biology at Kenyon College, has developed a Google Form for students to complete in conjunction with each recommendation letter request. Form responses are collated on an accompanying google sheet, enabling requests to be sorted by deadline, student name, or program. While it’s no substitute for genuine conversation with students, this system streamlines recommendation logistics, helping Wade organize the information so that he can write more effective letters without missing deadlines. Below are the questions on Dr. Powell’s form. Please feel free to copy and adapt for your own use.

- A) Email Address
- B) Name
- C) Preferred name used in recommendation letters.
- D) Institution to which you are applying.
- E) Name of the program to which you are applying.
- F) What type of program is this? (e.g., REU, internship, graduate program, job title)
- G) What is the due date of the letter?
- H) Will the program contact me with a link or do I need to email the letter?
- I) If the letter needs to be emailed, specify the email address.
- J) Please provide the URL for the program/position that you are applying to (strongly recommended)
- K) Does the program or position require a special recommendation form? Special forms (including AMCAS letter requests) should be emailed to me. Your email subject line should take the following form: First name Last name, Institution name
- L) What courses did you take with me, and when?
- M) What do you wish my recommendation letter will convey? What strengths will you emphasize in your application? What vulnerabilities can I help you finesse?

SOT FUTURE Committee Members (2020 – 2021)

Name	Affiliation	Email
Mindy F. Reynolds, PhD, Chair	Washington College	mreynolds2@washcoll.edu
Larissa Williams, PhD, Co-Chair	Bates College	lwillia2@bates.edu
Blase Billack, PhD	St. John's University	billackb@stjohns.edu
Michael G. Borland, PhD	Bloomsburg University of Pennsylvania	mborland@bloomu.edu
Jamie C. DeWitt, PhD	East Carolina University	dewittj@ecu.edu
Jodi A. Flaws, PhD	University of Illinois, Urbana-Champaign	jflaws@illinois.edu
Emily Notch Ford, PhD	Western New England University	emily.ford@wne.edu
David O. Freier, PhD	Lynchburg College	freier@lynchburg.edu
Joshua P. Gray, PhD	US Coast Guard Academy	joshua.p.gray@uscga.edu
Gunnar Francis Kwakye, PhD	Oberlin College	gkwakye@oberlin.edu
B. Paige Lawrence, PhD	University of Rochester Medical Center	paige_lawrence@urmc.rochester.edu
Katie Paul Friedman, PhD	US EPA ORD-NCCT	paul-friedman@epa.gov
Wade H. Powell, PhD	Kenyon College	powellw@kenyon.edu
Wilson Kiiza Rumbeiha, PhD	University of California – Davis	wkrumbeiha@ucdavis.edu
Caroline Moore, PhD, Postdoctoral Representative	San Diego Zoo	camoore@sandiegozoo.edu
Elise Hickman, Graduate Student Representative	University of North Carolina – Chapel Hill	ehickman@email.unc.edu
Courtney E. W. Sulentic, PhD SOT Council Liaison	Wright State University	courtney.sulentic@wright.edu
Betty Eidemiller, PhD, SOT Staff	SOT Headquarters	bettye@toxicology.org

To those members of FUTURE whose terms are ending in Spring 2021, we say THANK YOU for your service to FUTURE and your time and efforts! These members include Dr. Mindy Reynolds, Dr. Joshua Gray, Dr. David Freier, Dr. Wade Powell, Graduate Student Representative Elise Hickman, and Postdoctoral Representative Dr. Caroline Moore.

We hope to see you at *future SOT meetings*, no pun intended!

Revisited—Teaching in a Pandemic: The Masked...the Virtual...the Hybrid

With the Fall 2020 semester officially in the books, we chose to revisit the story from the September 2020 UEN Newsletter that described how three FUTURE members met student learning objectives in the middle of a pandemic. We've asked these faculty members to reflect on the successes, failures, and areas of improvement for their respective delivery methods.

The Masked (Dr. Joshua Gray, US Coast Guard Academy)

At the US Coast Guard Academy, students remained on campus through Thanksgiving. Thanks to a robust COVID-19 surveillance testing strategy and a bit of luck, the campus remained largely COVID-19-free for the majority of the semester. Laboratories were given permission to run live classes, albeit with reduced course sizes. Each Fall, I teach Biochemistry and laboratory in the CURE-style, Course-Based Undergraduate Research Experience. This Fall I decided to adopt a new research project, namely testing for COVID-19 in sewage as the semester long research project. Students enjoyed learning about PCR techniques and technologies for medical assays and the challenges of applying PCR to sewage samples. Lab groups tried various protocols gleaned from the literature to attempt to isolate COVID-19 from the base's sewage. Other projects focused on the virus and vaccine development; each student group chose to follow the development of a different vaccine and shared what they learned each week in online discussion forums. Two of the vaccines studied, Pfizer and Moderna, were adopted by the US Coast Guard and students studying these vaccines became ambassadors of sorts, providing expertise to fellow students at the Academy. The course site has remained active with questions and comments well into this semester, despite the end of the course. In addition, four students stayed on for independent research applying sewage testing techniques to Coast Guard bases and ship sewage that is sent weekly to the Academy for analysis. Altogether students had high ratings for the course and enjoyed the real-world nature of the work.

[Joshua Gray](#) is a member of the SOT FUTURE Committee. He is a Professor of Chemistry, and Section Head of Chemistry, at the US Coast Guard Academy.

The Virtual (Dr. Mindy Reynolds, Washington College)

During the Fall 2020 semester I taught two biochemistry courses with the associated labs and a large section of majors-level general biology. All of my lectures and labs were synchronous, and attendance was required but not strictly enforced. The lectures were recorded with student permission and posted for students to review. Students were strongly encouraged, but not required, to turn their cameras on when possible to foster an interactive environment. As noted

in student evaluations, they appreciated the synchronous format and being able to go back to lectures to review concepts—something that is not possible in a typical face-to-face class.

Planning how to tackle remote labs was much more difficult and included journal clubs, medical case studies, and some fun at-home experiments. The case studies and journal clubs were an excellent reinforcement of topics covered in class, and the experiments allowed students to explore experimental design and trouble shoot protocols on their own.

My face-to-face classes rely on lots of group work, and I tried to recreate this using breakout rooms, but the students and I were not as pleased with the outcomes. I would frequently visit the breakout rooms to find silence, cameras off, and microphones muted. By the end of the semester, I abandoned all breakout rooms and found other ways to have interactions with the students using the chat feature. I found this to be more successful but limited the types of conversations I typically find in the classrooms.

Lastly, even though the student workload expectations were a little less than in previous semesters, the students had difficulty remembering when assignments were due or what was expected for each class, though it was clearly written in the syllabus. I found it useful to send weekly and sometimes daily reminders to the students about what was due that week. This replaced me writing things on the board at the beginning and end of the class and helped the students organize their assignments.

[Mindy Reynolds](#) is currently Chair of the SOT FUTURE Committee. At Washington College she is Chair of the Department of Biology and the Natural Science Division as well as Co-Chair of the Biochemistry and Molecular Biology major.

The Hybrid (Dr. Michael Borland, Bloomsburg University of Pennsylvania)

My university planned for a return to face-to-face (F2F) instruction for the Fall 2020 semester. I was slated to teach Biochemistry 1 lecture and its two laboratory sections. Social distancing requirements significantly reduced my ability to create the lab environment of “old”. I spent the summer designing a hybrid lab strategy and defining the essential laboratory skills. I also worked with our university information technologists to secure Virtual Machine (VM) access so that students still had access to software like ChemDraw and SigmaPlot. I planned to split each lab section into two attendance cohorts (named Maroon and Gold—school colors), and then place students in groups of three. Each week, one color cohort would attend lab and perform labs associated to the essential skills experiments. The other cohort would work on a different virtual experiment (2-D NMR, protein structures, sugar modeling and reactivities, etc.). I made training videos and short lectures to prepare students for all aspects of that lab. Furthermore, I would be available during lab time (on Zoom) for any questions. I thought I was ready!

The semester started in early August with plans to finish before Thanksgiving. All went well the first week. Then the excuses and quarantines began to roll in during Week 2. COVID cases rose

rapidly on my campus and in the region. My university pivoted to exclusive online instruction by the third week of the semester. Luckily, I had planned for just this contingency. I continued the Maroon/Gold lab format. The virtual experiments remained unchanged. The F2F cohort would attend Zoom lab with me; I would talk through the experiments, show videos/demos/pictures, and provide the data for analysis. The groups would utilize the break-out rooms and Virtual Machines to perform calculations, generate data figures, and write manuscript-style lab reports.

The semester had its ups and downs, but the students appreciated and noted my efforts in student evaluations. Zoom break-out rooms had challenges that required **a lot** of effort and numerous engagement activities to keep students on task. Fortunately, the usual number of students signed up for Biochemistry 2 for the spring semester. I have planned a more immersive lab experience to make up for the uniqueness of the fall semester.

[Michael Borland](#) is a member of the SOT FUTURE Committee, an American Society of Biochemistry Molecular Biology (ASBMB) Education Fellow, and Professor of Chemistry & Biochemistry at Bloomsburg University.



Ideas for the SOT Undergraduate e-Newsletter? Contact

[Blase Billack](#) – St. John’s University

[Michael Borland](#) – Bloomsburg University of Pennsylvania

**Published by the Faculty United for Toxicology Undergraduate
Recruitment and Education (FUTURE) Committee**

SOT(c) 2021 www.toxicology.org