Chairperson's Message

Dear Colleagues:

I hope that everyone had a relaxing and restful summer break, and was able to take time to travel, spend time with family and friends, and enjoy some much-needed and well-deserved time off. We all deserve a massive pat on the back for the time, energy, commitment, dedication, and creativity we have shown the past few years, and I hope that we can all take a bit of time to reflect on our accomplishments and use those to propel us forward as we start a new academic year.

The Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) and Undergraduate Educator Network (UEN) Committees have been busier than ever! Through two of our largest programs—SOT Undergraduate Research Awards (SURA) and SOT Internships—we were able to provide funding for 14 undergraduates to attend the SOT Annual Meeting in Nashville last March and 24 undergraduates to participate in summer internship programs this past summer, respectively. The quality of the applications for these two programs was incredibly high, highlighting the excellent work our undergraduate students are doing in toxicology under the mentorship of many leaders in this field. In addition, we put out two highly successful newsletters last year, expanded our curriculum resources, and hosted a webinar on grant funding opportunities for undergraduate educators. I want to thank all our FUTURE Committee members, including those who transitioned off FUTURE this year, for their hard work on this committee.

I also want to take the time to announce two new initiatives for this upcoming year (see page 2), with the goal of increasing the visibility of undergraduate educators within SOT and providing more opportunities for undergraduate researchers to share the amazing things they have been doing.

Lastly, while I realize we are already a few weeks into the semester already, I want to wish all of you a successful and wonderful 2023-2024 academic year. I am looking forward to working with our FUTURE Committee to put out the best programming possible for you all. Please reach out if you need more information or help taking advantage of the many programs FUTURE has available for you and your students. And if you know someone that is interested in undergraduate education or is currently an undergraduate educator that is not part of UEN, they can join the network by adding the community to their ToXchange profile (look under "Open Groups"). Happy Fall Semester!

Jaime Mirowsky, Chair, FUTURE Committee
Associate Professor, Department of Chemistry, State University of New York College of Environmental Science and Forestry
Chairperson's Message Continued: Two New FUTURE Initiatives

FUTURE will work to strengthen the UEN community by reinvigorating the ToXchange discussion board. To do this, FUTURE members will post discussion board topics on important and hot-topic issues related to undergraduate education, and we hope that many of you will share your thoughts and ideas on these topics with the rest of the Network by responding back. Further, if there are any topics you would like to see on the discussion board, you can post them yourselves or email me, and I can post them on your behalf. We will continue to use the UEN ToXchange discussion board to share information about SOT undergraduate-related programs, awards, and deadlines.

FUTURE is excited to announce that there will be more visibility for an education-focused poster category this year for the SOT Annual Meeting. We encourage you all to submit an abstract! Posters can include topics from new courses you designed, labs or activities you have implemented, successful outreach activities in which you have been involved, case studies you have created, and results from educational-based research you have been doing. I personally have had several education-based posters accepted for SOT, and it was a great experience getting to talk with others about what I had done, what they are doing, and exchange our ideas. I want to thank FUTURE Co-Chair Bob Roth for his communication with the Scientific Program Committee that resulted in clarification of this poster category. Please see Page 5 for more information.
Undergraduate Awards
SOT has a variety of awards to support undergraduate students attending the Annual Meeting and for other activities. The deadline is October 16 for the SOT undergraduate awards; if an accepted abstract is a criterion, the abstract also must be submitted by October 16. See SOT Apply and check the "Undergraduate Students" filter for a complete listing, including component group awards. A student may apply for any award for which they are eligible, but in one year, will only receive one of the national awards that provides travel support for the Annual Meeting.

1. SOT funding provides support for travel, lodging, and access to special undergraduate activities at the SOT Annual Meeting.

Undergraduate Diversity Program Student Travel Award
Students are selected to attend the three-day Undergraduate Diversity Program and receive meeting registration, travel funding, and lodging. Students must be US citizens or permanent residents and meet at least one of these criteria: from a racial/ethnic group that is underrepresented in the sciences (e.g., Black/African American, Latinx, Native American, Pacific Islander), first generation college, from an institution that does not have biomedical graduate degrees, or a member of an underserved population.
- Student Information and Application

SOT Undergraduate Research Award (SURA)
Undergraduate students who submit abstracts can apply for this award. Abstracts are due October 16. Awardees receive meeting registration, travel support, lodging, and special recognition.
- Information and Application

Undergraduate Diversity Program Advisor Travel Award
Faculty who are not members of SOT can apply for the Undergraduate Diversity Program Advisor Travel Award. Those who are selected receive meeting registration, travel support, and lodging, and attend the Undergraduate Diversity program.
- Faculty Information and Application

2023 SURA Recipients

Undergraduate Students
Register for Free for the SOT Annual Meeting!

Students use the Registration Form PDF and send a copy of their student ID to SOT Registration.
2. Additional Undergraduate Funding

Perry J. Gehring Diversity Student Travel Award
Students who (1) received the Undergraduate Diversity Award within the last four years, (2) submit an abstract for the meeting, and (3) are from racial/ethnic groups underrepresented in the sciences can apply for this travel award.
• Information and Application

Diversity Initiatives Career Development Award
Undergraduate Affiliates and Graduate Student members from groups underrepresented in the sciences can apply for up to $1,000 funding to support educational and career development experiences. Application deadline is April 15, 2024.
• Information and Application

Undergraduate Educator Award
The Undergraduate Educator Award, sponsored by the SOT Endowment Fund, is presented to an SOT member who is distinguished by outstanding contributions to the teaching of undergraduate students in toxicology and toxicology-related areas and whose efforts support the Society's strategic efforts to "build for the future of toxicology." This award consists of a plaque that is presented at the SOT Annual Meeting Awards Ceremony and a cash stipend. Application deadline is October 9th.
• Information and Application

Undergraduate Education Program Sunday, March 10
Undergraduate students learn more about the variety of science related to toxicology through presentations and a case study, with the opportunity to network with graduate students and toxicologists. Breakout sessions feature tips on applying to and succeeding in graduate school and career opportunities in different employment sectors. The afternoon concludes with open time to meet with representatives of various graduate programs in toxicology.

Student/Postdoctoral Scholar Mixer Sunday, March 10
This event, which follows the SOT Welcome Reception, is the opportunity for undergraduates to network with other undergraduates, graduate students, and postdoctoral scholars as well as learn more about how to get involved in SOT component groups.

In Vitro Lecture and Luncheon Monday, March 11
During lunch, the speaker will present a case study topic which will then be discussed at each table. Guests at this event include undergraduates, graduate students, and postdoctoral scholars, and the toxicologists who serve as hosts and discussion facilitators.

Undergrad Gab with a Grad Over Grub Tuesday, March 12
All undergraduate students are invited to this informal gathering to learn more about engaging with SOT and to network with graduate students. Learn about their experiences as trainees and what different graduate programs are like.
Calling All Educators!
Bring Your Innovations in Education to the 2024 SOT Annual Meeting!

Consider submitting a poster summarizing your efforts and successes in education and training in toxicology-related areas using the poster category "Educating Future Toxicologists and Communicating with the Public." The deadline for submission of abstracts is November 13, 2023.

Toxicology education occurs at all levels, from outreach to the public to K-12, undergraduate, graduate, and professional training. Presenting a poster at the SOT Annual Meeting is an excellent opportunity to share your work with others and to network with other toxicology educators.

Topics of Interest Include, But Are Not Limited to:
- Toxicology content for undergraduate courses
- Toxicology laboratory activities
- Summer research experiences for high school and undergraduate students
- Innovative methods of teaching
- Graduate mentoring innovations
- Career development training
- Active learning and problem-based learning in toxicology
- Translating toxicology to the public
- Risk communication at all educational levels for communities and the public
- Programs to improve recruitment into the discipline of toxicology
- Innovative diversity and equity efforts in education

Guidelines for Writing an Effective Education Abstract
- What is the activity and its connection to toxicology?
- Who is in the population being served?
- What are the learning outcomes/objectives for the activity?
- What are the details of the activity that can inform other practitioners?
- How has the effectiveness of the activity been evaluated?

Additional Details
The SOT Scientific Program Committee reviews submissions. Abstracts related to informal/formal education (e.g., in-class activities, laboratory experiments, educational-based research) or outreach/community-based learning events are relevant for the "Educating Future Toxicologists and Communicating with the Public" category. In the abstract, state the background for the project, purpose or goals of the activity and the methods used. Summarize the study results or findings, and articulate the implications for stakeholders and for toxicology. Care should be taken to distinguish between statements based on documented facts versus opinions. Literature surveys or reviews and background materials are insufficient in and of themselves. For additional information, guidelines, and instructions, please consult SOT Abstract Directions for the 2024 Annual Meeting.
Spotlight on Undergraduate Faculty Research Grants

The Undergraduate Faculty Research Grant program is one mechanism by which SOT has enhanced recruitment and retention of undergraduate students in toxicology. This program has supported faculty grants for training of undergraduate students through a toxicology-based research experience as well as faculty development activities. In this spotlight, FUTURE would like to highlight some recent successes of this program and acknowledge the 2022-2023 recipients. Please note: this program is currently on pause; therefore, SOT will not be accepting applications during 2023-2024.

For the 2022-2023 cycle, the FUTURE Committee selected five recipients of SOT Undergraduate Faculty Research Grant.

- Dr. David Blake at Fort Lewis College and two Native American students (Kiara Nanez and Cherisse Charley) purified and characterized extracellular vesicles (EVs) secreted by host macrophages before and after treatment with sulforaphane (a natural product in cruciferous vegetables), with a focus on NRF2 (a key anti-inflammatory transcription factor that could be transmitted to other cells via EVs). This was conducted during the summer of 2023.
- Dr. Michael Borland at the Commonwealth University of Pennsylvania Bloomsburg Campus will examine the dose-dependent effects of betulin/betulinic acid on apoptosis, metabolic activity, and transcriptional signaling pathways during the 2023-2024 academic year: two undergraduate student researchers will work on this project.
- Dr. Kelly Vaughan of King University will investigate several aspects of toxicant exposure in the model organism *C. elegans*. Three undergraduate students will work on these projects during the 2023-2024 academic school year, including the protective effect of nicotine on neurodegeneration characteristic of Parkinson’s Disease, effects of non-nutritive sweeteners on lipid and glucose metabolism, and reproductive and lipogenic effects of exposure to bisphenol compounds.
- Dr. Julie Hall at Lincoln Memorial University will investigate effects of heavy metals on the aging process during the 2023-2024 academic year; one undergraduate researcher will work on this project.
- Dr. Alison Sanders and student Annika Spencer from the University of Pittsburgh will investigate combined effects of heat stress and environmental contaminants and potential effects on kidney function and disease including chronic kidney disease of unknown etiology during the summer of 2023 and the 2023-2024 academic year.

Recent examples for the success of this grant program during the summer of 2022 include the research experience of four students in the laboratory of Dr. David Blake at Fort Lewis College; Patrick Fleming in the laboratory of Dr. Julie Gosse at the University; Celine Campos in the laboratory of Dr. Karin Streifel at Regis University; and Sabah Vikaruddin and Mahmood Shah in the laboratory of Dr. Margaret Bell. The research experience in the Bell laboratory is highlighted on the next page, along with a short student reflection. For more information on the mentor and student perspectives on undergraduate research experiences, see the SOT blogs listed below.

**Summer Research Experience at Fort Lewis College Funded by SOT, NSF, and NIH**

**University of Maine Student Funded by SOT Investigates Antimicrobial Toxicity During Summer 2022**

Top (left to right): David Blake, Kai Brantley, Aaliyah Juanico, Nate Valdez, Ethan Anderson.
Bottom: Patrick Fleming
Spotlight on Undergraduate Faculty Research Grants (con't)

One recent example for the success of this grant program FUTURE would like to highlight is the research experience of students in the laboratory of Dr. Margaret Bell at DePaul University (2021-2022 cycle).

Two students, Sabah Vikaruddin and Mahmood Shah, were directly supported by the grant, while several other students (Isabel Grandy, Jennifer Dinh, and Matt Lee) participated in the research while supported by other mechanisms. This project supported significant progress in establishing and collecting data with a method (new to the lab): acutely isolating relatively pure microglia from adolescent male and female rats to determine direct effects of PCB exposure on microglial activation and reactivity to a secondary proinflammatory challenge. Students presented research at DePaul University Undergraduate Research Showcase. All students involved in the project pursued higher education following graduating, including Master’s programs in biology and neuroscience and medical school. Dr. Bell received CSH faculty mentor of the year award, nominated for and voted on by DePaul Students, Spring 2022. The data gathered supported successful applications for a DePaul University Research Committee Competitive Research Award and a successful NIH R15 application.

Reflection of the undergraduate students, Mahmood Shah, Spring 2022:

In my time doing research on the effects PCB exposure on microglial activation, I worked with a team and where my task was to isolate microglia out of the brain of euthanized rats in a biochemical fume hood. I learned lab techniques like pipetting, centrifugation, homogenization, and rat handling. When I joined Dr. Bell’s research team, she had just taken on this project so I worked with her in testing out the protocol that we currently use to isolate microglia and was trained in various lab techniques necessary to do so. I learned the importance of patience and appreciation for the small steps and details that had to be perfect in order for the procedures we did to be successful. This will bode well for me in my career in medicine because of the attention to detail necessary in that field as well. One missed detail in a patient can be the difference in the proper diagnosis of a disease or condition, and my experience with Dr. Bell will help me to be vigilant about monitoring all details in my future career. Another aspect of my research with Dr. Bell was discussing literature surrounding the impact social stressors and their impact of chemical stressors and overall mental function. This experience gave me a new perspective on looking at inequity and how it can affect the body in deep and significant ways. This led me gaining a higher sense of empathy for people in that position and will help me as a physician by allowing me to acknowledge the context of the sickness they have rather than just the sickness itself. Lastly, I hope to continue research while I am in medical school, hopefully in neuroscience if there are positions available. My experience doing research with Dr. Bell will aid me in future research experiences because during my research on PCB’s I learned the importance of perseverance, which translates to all types of research. There were times when we were piloting the new protocol and even after where things went wrong, and I made mistakes or we could not figure out who made the mistake but it was apparent in the result that errors were made. However, we continued to persevere and were able to obtain substantial results. This will help me in future research positions as I will have learned not to become discouraged after the mistakes that I will most definitely make or if the results are not displaying the way I want them to.
ToxMSDT Prepares Undergraduates for Careers in Toxicology

The Toxology Mentoring and Skills Development Training Program (ToxMSDT) is a national program funded by the National Institutes of Health (NIH) to provide career development opportunities for STEM undergraduate students from diverse underrepresented backgrounds. This unique one-year long mentoring and skills development training program is hosted by the University of California, Davis (UCD), housed in the Department of Molecular Biosciences. Other members of the consortium are the Society of Toxicology, Iowa State University, Tuskegee University, and Michigan State University.

Annually, 25 undergraduate students are competitively selected for mentorship from institutions of higher education nationwide. The mentees are matched 1:1 with volunteer mentors from industry, academia, government, or nonprofit entities from across the country. The students also take educational e-modules and case studies throughout the one-year long program. These modules and case studies are available virtually 24/7 on the ToxMSDT website (ToxMSDT- Skills Development).

The second goal of the ToxMSDT program is outreach. This is a lesser known but key goal of the ToxMSDT program. The program is building high quality educational content not only for use by our ToxMSDT mentees, but by anyone in the general public with a computer or hand-held device connected to the internet. In other words, this highly curated educational toxicology content can be accessed globally 24/7. The major goal of this blog is to highlight these resources. Undergraduate institutions in the US and around the world can use these modules and case studies for teaching purposes. Currently there are 6 modules which are online i.e., Principles of Toxicology (ToxTutor) which was originally developed by the National Library of Medicine, Principles of Genetic Toxicology, Pathophysiology, Applied Systems Toxicology, Biochemistry and Molecular Genetics, and Regulatory toxicology. Drs. Mindy Reynolds and Joshua Gray who are members of the UEN together with Dr. Betty Eidemiller from SOT are spearheading the effort to update these modules. In consultations with Drs. Rumbeiha and Jodi Flaws, Drs Reynolds, Gray and Eidemiller have recruited talented teams, mostly from UEN, to refine old modules and build new ones. Besides e-modules, there is an acute lack of toxicology case studies that can be used for instruction in undergraduate toxicology classes. This fall look for the revamped pathophysiology, biochemistry, and genetics modules and new case studies on lead, aflatoxin, arsenic, and vaping. The teams have also embarked on two new modules i.e., Neurotoxicology and Developmental/Reproduction toxicology and two case studies on 1) pesticides and ethanol and 2) forever chemicals.

Dr. Annette O’Connor, our partner from Michigan State University, is developing new content on rigor and reproducibility which will come online also towards the end of fall. Last but not least, our partners from Tuskegee University led by Dr. Ebony Gilbreath, are developing new content on environmental justice using lead as an example. Once fully developed and implemented, these e-modules and case studies will be available 24/7 to anyone with a computer or mobile device. Already, this content is being accessed (continued on next page).
ToxMSDT (con't)

by students from all over the world and in some cases professors have assigned their students to take these modules for their class work. Students are issued certificates at the completion of each module or case study. As ToxMSDT is a young program, undergraduate educators may not be aware of these teaching resources which are or will soon be available. ToxMSDT is grateful to Drs. Reynolds and Gray for the leadership they are providing in developing the content. We still need help, however. As these e-modules and case studies are being improved or developed, we need individuals for beta testing them before they come online.

If you would like to volunteer for this activity please contact either Mindy Reynolds or Josh Gray. Or you can contact the ToxMSDT Program Manager, La Cole Blackshire.

St. John's to Celebrate 2nd Annual National Toxicology Week

Last year, the Toxicology Program at St. John's University observed the first annual "Toxicology Week" from November 5-11. They will be continuing it as a tradition, and are spreading the word through SOT to encourage other institutions to celebrate this year. Below is a letter from its originator, Dr. Sue Ford.

In the last weeks of August I'm a bit wistful of summer's end (where did it go???) but the excitement of planning a new semester takes over. Freshening up my syllabi with new ideas that I've been collecting since last year is a priority. My colleagues and I are also planning our fall semester extracurricular activities for students in our program, including the Fall Reception, ToxiCarnival, Career Night, and Movie Night.

This year St. John's will again be celebrating Toxicology Week, November 5-11. That week is particularly good for academia—being in the middle of the semester it is far enough along to allow sufficient time to plan an event or two, and it's well before the Thanksgiving break and term paper/final exam rush. This is also a time when high school students and undergraduates are thinking about their next steps. Providing them with information about this STEM field may help them consider a path that they wouldn't have otherwise known about.

In the meantime, SOT is investigating ways to embrace a National Toxicology Week. The hope is that academia, industry, and government agencies involved with toxicology would participate to make this a great way to inform the public of the important role that the science of toxicology plays in their lives.

At St. John's we will be moving our Dean's Hour Career Night and Movie Night to Toxicology Week. During Career Night, four of our alumni chat with current students about how their careers have progressed since graduation. For Movie Night we show a toxicology-related film. Last year it was “Dark Waters” and this year we’ll show “The Poison Squad.” Popcorn included.

We hope that you will join in so we can all celebrate toxicology with our undergraduate and graduate students. If you have any questions please e-mail me at fords@stjohns.edu. Have a great semester! ~Sue Ford
Feedback From 2023 SOT Undergraduate Research Interns

This summer FUTURE members (including Jaime Mirowsky, Tracie Baker, Phillip Wages, and AtLee Watson) hosted a virtual event for SOT supported interns to discuss opportunities with SOT available to undergraduates and learn more about their internship experiences. The event included 15 SOT supported interns from across the United States. This event was organized in addition to a survey completed by 19 interns.

SOT supported interns were administered a survey to assess various aspects of the SOT internship experience. Some of the key takeaways are below.

**Improved Confidence in the Laboratory:** interns found increased confidence in scientific and research abilities following completion of their internship. 100% of respondents had increased confidence with the statement "I have a better understanding of what everyday research work is like."

**High Likelihood for Recommending the Program:** over 50% of interns said they were highly likely to recommend an SOT sponsored internship to a friend.

During the virtual intern discussion with FUTURE members interns were asked several questions. Below is some of the feedback we received.

**What is the single most important thing learned during your internship?**

Demystification of lab techniques (reading about them vs. actually performing them)

Advocating for yourself (taking opportunities when available, asking for clarifications when you have a question)

**What advice would you give a future intern?**

Give yourself time to adjust. You might feel overwhelmed with everything, but you will learn quickly.

Don’t be afraid to fail, don’t be afraid to make mistakes.

To learn more or apply, visit [SOT Internship Program Support](#), Deadline for Summer 2024 Internship Program Support is January 8.
Evidenced-Based Teaching Resources

Do you have a classroom exercise that you've used for years that you want to share with the broader toxicology community? SOT has partnered with CourseSource, an online journal that targets the publication of evidence-based and tested exercises for use by undergraduate educators in the classroom. Share your efforts with your peers and help advance toxicology education!

- Joshua Gray and Wade Powell are the course editors for toxicology and can help guide your paper at any time during the process.
- To start, visit the CourseSource website and select the article template for the type of article you want to submit. It helps to download other articles of the same type to get a feel for what is typically included in a CourseSource paper.
- Several examples have been accepted in the toxicology collection, including papers written by SOT members Mindy Reynolds, Lauren Aleksunes, and Joshua Gray.

CourseSource includes great ideas to incorporate in your teaching!

SOT-Sponsored Podcast: Adverse Reactions

Looking for a unique way to mix-up your lesson plans? Consider utilizing the SOT-sponsored podcast Adverse Reactions. Read below to find out more from podcast hosts, and SOT members, Anne Chappelle and David Faulkner.

Adverse Reactions is a podcast about toxicology, but it's not just for toxicologists! The show was sponsored by the Society of Toxicology Council as part of a science communication initiative to make toxicology more accessible to non-experts and casual learners, and give a platform for SOT members to share their work with wider audiences. The show was initially meant to be recorded at the 2020 Society of Toxicology meeting and include audiovisual elements, but the pandemic changed the course of the show and shaped it into the podcast that it is today.

Regular listeners of the show might also be surprised to learn that Anne and David didn't know each other prior to the show's creation and were picked from a pool of possible hosts. "Anne is one of my most treasured colleagues," David says, "I count myself as tremendously lucky that the show connected us." To help the hosts develop their chemistry, the SOT arranged for a handful of phone calls ahead of the first recording to help the hosts get to know each other and develop their on-air chemistry. "It's funny," David continues, "I was really nervous for our initial phone call, but now we've got a sibling-like friendship. I think we play off each other really well."

And how does the show pick guests? The process involves a bit of show business alchemy to balance out the conversation topics over the course of the season, and to accommodate the schedules of busy professionals for a few hours of recording. Each season has a theme and invitations often go out to SOT members whose work fit the theme, although in recent seasons the show has included a few guests whose work interacts with the discipline of toxicology, even if they're not SOT members. An overarching theme of the whole show is that toxicology touches nearly all aspects of everyday life, and that the discipline draws on many fields of expertise—truly, a universal science!
FUTURE Committee Member Profile: Dr. Jaime Mirowsky

This newsletter feature highlights a FUTURE member in their final year of service on the committee.

Q: How has being a member of the FUTURE Committee of SOT helped you from a faculty development perspective?
Being a member of FUTURE has helped me greatly, particularly from a networking perspective. It is a wonderful opportunity to connect with like-minded educators who believe in the value of providing a strong, fun, engaging, yet rigorous learning experience to undergraduate students. Through people I have met as part of FUTURE I have shared (and received) lesson and grading ideas, met many of our excellent webinar speakers, and have found a solid support system.

Q: What advice can you give to members of the UEN who are new to toxicology or who are looking to incorporate toxicology into the courses they teach?
For those that are looking to incorporate toxicology into the courses they teach, I would say that toxicology is such a multi-disciplinary field that it can easily be integrated into most courses. Personally, I love incorporating toxicology concepts into my chemistry course when asking students to learn to analyze data as case studies. I also use toxicology examples when discussing redox reactions and quality control. It might just be a matter of changing out the examples you use when teaching about different topics.

For those that are new to toxicology, a great place to start is to either find a topic that students can directly relate to or that you are passionate about yourself. Both are great ways to engage students in your class, whether it is a toxicology course or not. One of the courses I teach is an upper division chemistry course, and the content can be dry if I only take information directly from the textbook. However, in my most recent course evaluations, one student commented about how the topic was boring but that the enthusiasm and energy I displayed while teaching the course made them want to go to class each day. I will take that as a win!

Q: In three to four sentences, describe your research to our readership.
Previously, my research has involved assessing how poor air quality impacts human health through both toxicological (in vitro) and epidemiological methods. However, since starting my faculty position seven years ago, my research has shifted more towards monitoring the local air quality where I live, as there is a local interstate near my College that is slated for demolition and those in the community living near this interstate are concerned about how the construction might impact their health. While I love my prior work and hope to get back to doing that soon, having the opportunity to work directly with a community is something I am excited to be a part of.

Q: This is your final year on the FUTURE Committee. What will you miss most about serving SOT in this way?
While I can only speak for myself, I am sure that many of us can say we would have never made it to where we are if someone (or some entity or group or reviewer) didn't take a chance on us at some point in our careers. As part of FUTURE, I feel like I can be part of that experience through many of our programs, such as giving undergraduate students a chance to attend the SOT Annual Meeting through our SOT Undergraduate Research Awards (SURA) or giving students a chance to work in a research lab through the SOT Internship Program. In this way, I feel like I have had some part in paying it forward, and to me, that has made being part of the FUTURE Committee such a great experience.
FUTURE Committee Member Profile: Dr. Jaime Mirowsky (Con’t)

Q: What do you think is an important next step for undergraduate toxicology education?
There are three major topics that I believe will be important to consider over the next few years in undergraduate education: new technology, student disengagement, and student mental health struggles.

First, I think that many undergraduate educators are going to focus their energy and time on how new forms of technology can be used in the classroom. Likewise, I think that many educators will need to figure out how to address its use by students, particularly as it relates to academic integrity. Second, many faculty have noticed an increase in student disengagement over the past several years, largely thought to be exacerbated by the pandemic. Again, I think that many educators will spend time thinking about what the role of faculty play in this, and whether or not they should change aspects of their classroom to encourage students to engage more deeply and thoughtfully with their course material. Lastly, and similar to student disengagement, many professors have seen higher levels of students struggle with poor mental health these past few years. I think a lot of future discussions will focus on how we can help these students while maintaining academic rigor. While most of these topics are not related to toxicology specifically, I think that having open dialogues and discussions at the individual, department, institutional, and even within our network of educators here with UEN will be important for both faculty and students and will play a major role in how we educate the next generation of scientists.

Can You Help Educate Undergraduates About Toxicology and Career Opportunities?

The SOT ToxScholar Outreach Program encourages SOT members to visit campuses to present toxicology content to primarily undergraduate audiences and to discuss career opportunities in toxicology. These students might be majoring in disciplines such as chemistry, biology, and environmental science. ToxScholar activities support SOT’s efforts to recruit future toxicologists.

SOT supports the ToxScholar program by supplying Introductory Slide Sets that can be used in presentations and other web-based resources. SOT has paused funding for the ToxScholar program this year. Faculty who would like to arrange a ToxScholar visit but don’t have a specific SOT member in mind can contact Betty Eidemiller. Bob Roth is the lead coordinator for this FUTURE activity.

FUTURE appreciates information about visits made by SOT members to undergraduate audiences and encourages ToxScholars to write an SOT blog.
SOT FUTURE Committee

The Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) Committee is tasked with recruitment, retention, training, and education of undergraduates interested in toxicology. “Faculty” in FUTURE is inclusive, including those outside of academia, who promote toxicology career paths for undergraduate students.

Members (2023–2024)
- Jaime Mirowsky, PhD, Chair, SUNY ESF
- Robert Roth, PhD, DABT, Co-Chair; Michigan State University (emeritus)
- Tracie Baker, BS, DVM, MS, PhD, University of Florida
- Robin Bright, BS, PhD, Fort Valley State University
- Eva-Maria Schoetz Collins, PhD, Swarthmore College
- Tirupapiliyur Damodaran, PhD, North Carolina Central University
- Nick Filipov, MS, PhD, ATS, University of Georgia
- Gina Hilton, PhD, PETA Science Consortium International
- Meghan Rebuli, PhD, University of North Carolina at Chapel Hill
- Courtney Roper, BS, PhD, University of Mississippi
- Phillip A Wages, BS, PhD, Estee Lauder Companies
- Karen Watanabe, PhD, Arizona State University
- AtLee Watson, PhD, DABT, Inotiv
- Kimberly Zaccaria, PhD, DABT SRC, Inc.
- David Blake, BA, MS, PhD, Liaison from CDI, Fort Lewis College
- Hannah B Lovins, BS, Graduate Student Rep, The Ohio State University
- Jephte Akakapo, PhD, Postdoc Rep, University of Kansas Medical Center
- Jennifer L Rayner, PhD, DABT SOT Council Liaison, SRC, Inc.
- Robyn Leigh Tanguay, PhD, SOT Council Liaison, Oregon State University
- Betty Eidemiller, PhD, SOT Staff Liaison, SOT Headquarters

FUTURE welcomes the following new members and representatives to the committee this year:
- Tracie Baker, Eva-Maria Schoetz Collins, Gina Hilton, Megan Rebuli, Phillip Wages,
- Hannah Lovins, Jephte Akakapo, and Jennifer Rayner.

Ideas for the SOT Undergraduate e-Newsletter?
Contact Kimberly Zaccaria, Newsletter Lead;
Tirupapiliyur Damodaran or Courtney Roper, Newsletter Team

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

SOT ©2023
www.toxicology.org