

Eric Bruton is UMSL "outstanding alumnus" first published 19 May 2021

Every spring, the last UMSL seminar of the academic year honors outstanding student accomplishment in the Department of Chemistry and Biochemistry. Awards and scholarships are presented to undergraduate and graduate students, and an outstanding UMSL alumnus is asked to speak, especially describing where he has gone since UMSL.

This year, the honoree was Dr Eric Bruton, who earned both BS (1997) and PhD (2003) degrees at UMSL. After experience at Chemir, Monsanto, Crosslink, and Jost, Eric now works in the St Louis research laboratories of Boeing. He spoke eloquently about his career path, pointing out how his chemistry degree has led to rewarding experiences, including very active roles in the St Louis Section of the American Chemical Society. He also described some of the extraordinary materials that have resulted from his research. A silver lining of the virtual ceremony/seminar was that Eric's PhD mentor, Professor Lee Brammer, now at the University of Sheffield (England), was able to participate.



Q

Eric Bruton

Leah O'Brien is the 2021 Saint Louis Section ACS Award winner!

Sophia Hayes, past chair of the St Louis Section of the American Chemical Society and chair of the award jury, has announced the winner of the 2021 St Louis Section ACS Award to be Dr Leah O'Brien, Professor and Chair of Chemistry at Southern Illinois University–Edwardsville.

Leah Ellingboe attended St Olaf College (Northfield, MN), and graduated with a BA in Chemistry with Departmental Distinction in 1983, just one course shy in both Mathematics and Physics from a triple major. She participated in a semester at Oak Ridge National Laboratories, studying mixed sodium-lanthanide phosphates characterized by Raman spectroscopy. Encouraged by her academic adviser, she applied and was accepted to the graduate program at the University of Arizona.

Leah moved to Tucson in August, 1983, and joined the research group of 2nd-year Assistant Professor Peter Bernath – a choice that turned out to be exactly right. Leah studied high-resolution spectroscopy, learning laser excitation, dispersed fluorescence, and laser-induced fluorescence techniques based on a Coherent 699-29 ring dye laser. Her work focused on monovalent calcium and strontium diatomics, $M^{+1}L^{-1}$, with a metal-centered valance electron that could be used to probe the electronic structure of these molecules. Ligands ranged from hydroxide to larger alkoxides, as well as isocyanate and cyclopentadienide. The Bernath group used the 1-m Fourier transform spectrometer (FTS) associated with the National Solar Observatory at nearby Kitt Peak for emission studies where she was a frequent visitor during the final two years of her program. She graduated with her PhD in December, 1987, having defended a thesis titled, "Laser and Fourier Transform Spectroscopy of Gas Phase Molecules." Leah won the prestigious Carl S. Marvel Award for Graduate Research in her 4th year at Arizona. She stayed an additional year in the Department as a post-doctoral scholar with Bernath and then as a Lecturer of Inorganic Chemistry in Fall 1988.

Leah met Jim O'Brien in Tucson, they married in 1986, and their first daughter, Christine, was born there in September, 1988.

The O'Briens moved to St Louis in January 1989. Leah accepted a post-doctoral staff fellow position at the US Food & Drug Administration, where she worked until August, 1990. Working with Dr Bill Doub, her research projects at the FDA focused on methods development for HPLC detection of p-chloro-m-xylenol (PCMX) and its major metabolites. She developed an in-line post-column enzyme reactor, wherein she bonded glucuronidase enzyme to column beads to construct the secondary column. A C-18 column would separate the PCMX, PCMX-glucuronide, and PCMX-sulfate metabolites, which flowed into the enzymatic column where metabolites were cleaved, leaving the free PCMX prime for electrochemical detection.

Leah joined the Chemistry Faculty at SIU–Edwardsville in August, 1990, with a research program proposing the spectroscopic study of late transition-metal diatomics such as CuO. Her lab at SIUE was a training ground for students to learn production methods in preparation for annual trips to the FTS at Kitt Peak. These trips were successful, with numerous publications, senior presentations, and masters' theses.

A second daughter, Emily, arrived in July, 1992. In academic year 1997, Leah spent a sabbatical year at the University of British Columbia (Vancouver) and at UM-St Louis working in collaboration with Jim's lab to combine his ultrasensitive Intracavity Laser Absorption spectrometer with her metal-containing gas-phase radicals. This was a huge success! Additional collaborations, funding, and equipment helped them expand their capabilities and contributions to molecular spectroscopy. Most importantly the O'Brien groups have been able to determine and understand the electronic structure of late transition metals bonded to various ligands and their excited states needed to test and guide the development of computational methods to predict the properties of new molecules and materials. Their contributions have provided fundamental insights into the nature of metal bonding involved in chemical synthesis and catalysis, as well as the structure and properties of the nucleus. Leah's academic record now includes 70 peer-reviewed publications, 12 competitive grants from the NSF, 3 from ACS Petroleum Research Foundation, 1 from the Research Corporation for Scientific Advancement, and 1 from the Camille & Henry Dreyfus Foundation. She has mentored 40 undergraduate students and supervised 12 masters' theses. She received the 2003 Paul Simon Outstanding Scholar Award (SIUE), the 2005 Vaughnie Lindsay Research Professor Award (SIUE), and the 2009 Distinguished Research Award/Promotion (SIUE). In 2012 she was honored as a Fellow of the American Chemical Society, and in 2015 she was elected Department Chair.

Leah's contributions to professional service are many. She is a reviewer for several scientific journals and has served as ad hoc reviewer and review panel member for three divisions within the National Science Foundation (Chemistry, Engineering, and Human Resource Development). She is an active member of the St Louis Section–ACS, where she has served in several governance positions and founded the local Women Chemists Committee. Leah has been an advocate for women and underrepresented minorities in STEM within the Section, on campus at SIU–Edwardsville, and in the community. She was the General Chair of a successful ACS 2011 Joint Midwest-Great Lakes Regional Meeting. Leah received the 2013 Distinguished Service Award from the St Louis Section and the 2014 E Ann Nalley ACS Award for Volunteer Service from the Midwest Region.

The Saint Louis Section ACS Award that Leah now adds to her list of honors, originally sponsored by the Monsanto Company (now Bayer) and administered by the Saint Louis Section–ACS, is presented to an individual who has made outstanding contributions to the profession of chemistry and demonstrated potential to further the advancement of the chemical profession. The award, consisting of a \$1,500 honorarium and a plaque, will be presented at the Saint Louis Award Banquet, which will follow an Award Symposium on Friday, October 1, 2021. For further details and updates please consult the St. Louis Section American Chemical Society website.

Building a Culture of Safety with CHAS first published 16 August 2021

Austin Moyle recently moderated a ACS Chemical Health and Safety (CHAS) workshop and submitted this helpful report. If you are interested in attending the next workshop on October 17th, registration information can be found at **the Eventbrite page**.

In June, I had the privilege of serving as a moderator at the ACS Chemical Health and Safety (CHAS) workshop, Empowering Academic Researchers to Strengthen Safety Culture. I was introduced to this opportunity after the WashU Chemistry Department kindly sponsored me to attend the same workshop in February 2021.

In a highly interactive format with regular break-out discussion rooms, the workshop covers: (1) Educating participants about the value of risks assessment by applying RAMP principles to their own lab: recognize hazards, asses risk, minimize risk, prepare for emergencies; (2) Guiding participants to improve awareness of safety culture and messages from university leadership by discussing the causes and effects of the well known lab accident at Texas Tech; (3) Empowering participants to expand their safety networks and develop laboratory safety teams (LSTs). An LST usually includes graduate students and postdocs who serve as safety officers in their own respective groups and work with department leadership to improve safety culture and policies at their own institution.

The audience of the workshop is primarily graduate student researchers, but we have observed consistent attendance from safety professionals and faculty.

I am most excited about the reach of this network of safety conscious researchers. Notably, I had already met another moderator for this workshop at another safety conference I had attended in 2019 in collaboration with ExxonMobil. I also recently discovered that one of my collaborators at Pfizer served as a facilitator for this workshop when he was just a graduate student two years ago at Yale. I look forward to continuing to work with this community—the next workshop is in October 2021. The attached screenshot includes the student leaders involved in putting on the workshop (taken with permission).





Leah O'Brien, winner of 2021 Saint Louis Award

Some info about this workshop:

The \$25 workshop was put on in collaboration with the ACS Great Lakes Regional Meeting (GLRM), such that those who attended the workshop could register for only \$5. There were 71 registrants—14 through GLRM, 57 who registered directly. 55 participants attended the workshop—10 through GLRM, 45 registered directly. 27 difference universities were represented by the attendees. Of those who canceled or did not attend, 12 people have bumped their registration to the October 2021 workshop.

More updates and History of the LSTs can be found here: https://dchas.org/2020/11/04/history-of-the-chas-lst-workshop/

David Wiemer, 2020 (yes, 2020) Midwest Awardee

We are pleased to present **David F. Wiemer** of the University of Iowa, as the 2020 Midwest ACS Award winner. The announcement of this award, normally presented at the Midwest Regional Meeting, was delayed due to the coronavirus pandemic, which caused, among many other ill effects, the postponement of the 2020 Midwest Regional Meeting.

David F. Wiemer joined the faculty at the University of Iowa in 1978, where he now serves as F. Wendell Miller Professor of Chemistry and Professor of Pharmacology.

Professor Wiemer is a native of the midwest who received a BS degree from Marquette University, where he was intrigued by the work of Prof. Donald Dimmel on terpenes. He earned his PhD degree from the University of Illinois under the guidance of Prof. Nelson Leonard for studies of nucleic acid bases and nucleosides. He then held an NIH postdoctoral fellowship at Cornell University with Prof. Jerrold Meinwald, where he studied various aspects of chemical ecology.

Although he began his independent research with studies on the chemistry of host plant selection by leafcutter ants, the majority of his subsequent work has focused on organophosphorus chemistry. This work began with development of new methods for carbon-phosphorus bond formation, and evolved into studies on applications of organophosphorus compounds in natural product synthesis or as analogs of metabolic intermediates. Natural product syntheses from his group that prominently feature organophosphorus chemistry include (+)-jatrophone and many of the natural schweinfurthins. His group has prepared numerous bisphosphonates as analogs of the diphosphate intermediates of isoprenoid biosynthesis, and through collaboration their compounds have been tested for their ability to inhibit

geranylgeranyl diphosphate synthase in enzyme and cell assays. Some of the more active compounds have demonstrated significant activity in animal models of malignancy. Recently his group has prepared phosphonate analogs of the unique intermediates in bacterial isoprenoid biosynthesis as potential "phosphoantigens", i.e. ligands of the human protein BTN3A1 and stimulants of $\gamma\delta$ T cell proliferation.

In his spare time, Prof. Wiemer served for two years as Interim Associate Dean of the UI Graduate College, and then served for eight years as the executive officer of the Chemistry Department. During his time as the Chemistry Department chair, he led a project that raised and spent nearly \$50M to expand and renovate the Chemistry Building.

Throughout his career he has co-authored more than 200 peer-reviewed publications, and mentored more than 60 graduate students to completion of the PhD degree. For many years he served as a tour speaker for the American Chemical Society, visiting more than 160 local sections on tour. He received a University of Iowa Collegiate Teaching Excellence Award and was honored with the Iowa Regents Award for Faculty Excellence. He also has been recognized as an Alfred P. Sloan Foundation Fellow, a fellow of the American Association for the Advancement of Science, and a fellow of the American Chemical Society.

Saint Louis Award Symposium program (2021)

The 2021 Saint Louis Award Symposium, Friday, October 1, is sponsored by the Saint Louis Section of the American Chemical Society and Southern Illinois University–Edwardsville

Honoring **Dr. Leah O'Brien**, 2021 Saint Louis Award Winner

Professor of Chemistry, Southern Illinois University–Edwardsville

Science West, Room 1136 SIU–Edwardsville and online with Zoom

Friday, Oct 1, 2021, 1–5 pm

1:00 pm	Dr. Samina Azad – Chair of the St. Louis Section ACS <i>Welcome and General Introduction</i>	
1:05 pm	Professor Michael J. Shaw – Symposium Chair Introduction and Salute to Dr. O'Brien	
1:10 pm	Professor Michael D. Morse – Distinguished Professor, University of Utah <i>Predissociation Measurements of Bond Dissociation Energies</i>	
1:55 pm	Professor Stephen A. Cooke – Professor, Taina Chou Fellow, and MRSC. State University of New York <i>The Surprising Structures and Dynamics of Some Fluorinated Organic Compounds</i>	
2:40 pm	Coffee break/Intermission	
2:55 pm	Professor Lucy M. Ziurys – Regents Professor, APS Fellow, and AAS Fellow. University of Arizona <i>TBA</i>	
3:40 pm	Professor Leah C. O'Brien – Distinguished Professor and ACS Fellow. SIU Edwardsville <i>Spectroscopy on a Laser Beam – Detangling Perturbations in Complicated Molecules</i>	
4:15 pm	Reception immediately following in the 1st floor atrium and patio	
6:00 pm	Saint Louis Award Banquet 2021 & 2020, Glen Echo Country Club, 3401 Lucas and Hunt Rd, Normandy, MO Reservations required (See link for more information)	

Venue information:

first published 18 August 2021

In-person attendees, please locate Science West on the SIU–Edwardsville campus map. Contact Tonya Wagner for parking pass.
For those that cannot come you may attend by Zoom: Registration not required; use passcode 179604.

The 2021 Saint Louis Award Banquet is on! first published 28 August 2021

St. Louis Award Banquet 2021

Celebrating Leah O'Brien (2021 Awardee) & Richard Loomis (2020 Awardee) Friday, October 1, 2021, following the Saint Louis Award Symposium at SIUE, Edwardsville.

Glen Echo Country Club*, 3401 Lucas & Hunt Road, Saint Louis, MO 63121

6:00 pm cocktails (open bar), hors d'oeuvres

7:00 pm banquet8:00 pm program

- Dr. Samina Azad, Chair, St. Louis Section–American Chemical Society
- Opening Remarks and Award Presentation
- **Prof. Michael Shaw**SIU Edwardsville *Introduction of the Awardee*
- **Prof. Leah O'Brien**, ACS Fellow, SIU Edwardsville,
- 2021 ACS St. Louis Section St. Louis Awardee Awardee Address: *Warming the Department Climate to Retain Women Faculty*

8:30 pm program (delayed from 2020)

- Prof. Sophia Hayes, Immediate Past Chair, St. Louis Section–American Chemical Society
- Opening Remarks and Award Presentation
 Prof. Bill BuhroACS Fellow, Washington University in St. Louis
- Introduction of the Awardee
- Prof. Richard Loomis, Washington University in St. Louis,
 2020 ACS St. Louis Section St. Louis Awardee
 Awardee Address: *It is Easier to Fill Big Shoes when You are Surrounded with Good People*

Please send reservations, including check, by September 21st to: Jeffrey Cornelius

Department of Chemistry

1 Maybeck Place

Principia College Elsah, IL 62028

phone: 618.374.5296; fax: 618.374.5122; email

Reservations

Because of concerns with COVID, we ask that all attendees be fully vaccinated, and asymptomatic when the attend the banquet.

Make checks payable to Saint Louis Section–ACS and include the information requested below. Alternatively, pay directly via **Paypal** and include the information requested below in the note window. For both methods of payment, please also send an email confirmation of the information to Dr. Cornelius.

Name(s)			
pecial dietary limitations, if any			
/accinated (yes or no)			
Number attending: (
regular ACS members and spouses, \$30 each			
graduate and undergraduate ACS members, \$15 each			
non-members, \$60 each)			
= amount remitted: \$			



David Wiemer, 2020 Midwest Awardee

For information on ACS Membership please see **the following link**.

- Glen Echo Country Club is in Normandy, in the southwest sector of the intersection of Natural Bridge Road and Lucas & Hunt Road. See map. Use either entrance:
 - 1. Main entrance drive: turn west off Lucas & Hunt Road; Edison Avenue will be on the opposite side of the road almost adjacent to the entrance drive. Continue on the winding drive, and the parking lot will be on your right adjacent to the clubhouse.
- 2. back entrance: turn south off Natural Bridge Road onto St Marys Lane, just east of the post office. Continue through the gate, veer right, and park in front of the clubhouse.

Cocktails with Chemists is back!

With COVID numbers on the steep decline and the possibility for outdoor activities this summer, the always popular Cocktails with Chemists sprang back to life to give our members some much needed socialization time. The first event on June 15th at Rosalita's Des Peres was attended by about 25 attendees (including new faces!) to nosh on Mexican appetizers and margaritas.



The event on August 4 was held at the Greensfelder Pavilion in Creve Coeur Park. Described by Director Woerndle as her "most favorite Cocktails with Chemists we've ever had," attendees enjoyed a cooler of beer and a box of Jimmy Johns while they chatted and watched the sun set over Creve Coeur Lake. New chemists were welcomed to the area, recruiters were met, and old friends caught up on all the craziness.





Look like fun? Don't forget to visit the **Coffee and Cocktails with Chemists Meetup page** and sign up for updates!

Feeling Meritorious? Want to help some Scouts get their badges?

first published 30 August 2021 This year's Boy Scouts of America Chemistry Merit Badge Clinic looks to be a hoot. If you are a scout hoping to attend, you are fresh out of luck, but if you would like to volunteer consider this your invitation! This year's clinic is at Jost Chemical, and includes a tour of their facilities. If this sounds like a good time, please contact Lisa Balbes at lisa@balbes.com. Full information with times, addresses, etc below:

Scouts BSA Chemistry Merit Badge Clinic

Saturday, October 23, 2021 Jost Chemical 8110 Lackland Rd. St. Louis, MO 63114.

Contact **Cynthia Chapple** for more information.

Registration opens at 8am, the opening session will begin at 8:15 am. The clinic will end by 1:30pm.

September's Minority Affairs Event focuses on the Latin American experience

first published 31 August 2021

Understanding the Identity of the Latino: Fighting Conscious and Unconscious Biases Latin People Encounter at Work

Fighting stereotypes that plague minority groups is a key aspect to improving diversity at any workplace. The threat of being stereotyped has been shown to not only have an effect on minorities by the way they engage at work, but by having an influence in their leadership, entrepreneurship, and competitiveness. A way to fight these detrimental stereotypes that lead to some of the conscious and unconscious biases we may have against minority members we work with, is by furthering our understanding of their culture and identity. The aim of this workshop is to help participants understand the diversity of Latin people that are present in the United States and that we may work with. By learning about the diversity of their identity and the diversity present in this multi-racial community, we can help destroy the typical and detrimental stereotypes that currently exist of Latin Americans in our society.

Please join us Wednesday, September 29th from 6:30 PM – 8:00 PM CDT. Sign up information can be found at the **Eventbrite link**.





Hispanic Heritage Month Couragous Conversations with Chemist presents

Understanding the Identity of the Latino: Fighting Conscious and Unconscious Biases Latin People Encounter at Work

Wednesday Sept. 29th ITime: 6:30-8pm IWhere: Virtual Via Zoom I RSVP: Eventbrite

Contact Cynthia Chapple , cmchappl@gmail.com for additional details , RSVP via eventbrite.



Board of Directors

St Louis Section-ACS Board of Directors meets the second Thursday of each month over Zoom for the forseeable future

Date: Sept 8 (via Zoom)

Join internet meeting at 6:00 pm for social/chit-chat Business meeting begins at 6:30 pm

Future meetings: The next meetings are October 14th and November 11th

Maryville University

Seminars are approximately once a month on Thursdays, 4-5 pm. Details are available on the university's seminar page. All seminars are free and open to the public. Contact Jason Telford for more information.

Saint Louis University

Seminars are generally on Fridays at 12 noon in Carlo Auditorium, Tegeler Hall, unless noted otherwise. Refreshments follow. For the most up-to-date information, refer to the department's **home page** and follow the link to the Seminar Schedule.

University of Health Sciences & Pharmacy in St. Louis

The Center for Clinical Pharmacology hosts a monthly seminar series in ARB 212 unless otherwise noted. For the most up to date information refer to the center's seminar page or contact Jodi Maslin.

University of Missouri–St Louis

Mondays at 4 pm in 451 Benton Hall, unless otherwise specified. Refreshments 15 minutes prior to seminar time. For timely information on visiting seminar speakers, contact the Chemistry Department, 314.516.5311, or visit the **seminar schedule**. The department has additional seminar series which are also accessible from this page.

Washington University

Seminars are in McMillen 311 at 4 pm unless otherwise noted. For information, consult the departmental events page. Related seminars, including endowed seminar series and the WU med school biochemistry series, are linked here as well.

POLYMER STANDARDS FOR GPC/SEC MOLECULAR WEIGHT ANALYSIS GPC/SEC COLUMN REPACKING

American Polymer Standards Corporation 8680 Tyler Boulevard, Mentor, OH 44060 Phone: 440-255-2211 Fax: 440-255-8397





MATERIALS CHARACTERIZATION

MORPHOLOGY CHEMISTRY STRUCTURE

OM / SEM / EDXA / EPA / WDXA, XRF / ESCA / AUGER / XRD DSC / TGA / MFTIR

3815 LANCASTER PIKE WILMINGTON DE. 19805 Voice 302-998-1184, Fax 302-998-1836 E-Mail micronanalytical@ compuserve.com WEB PAGE : www.micronanalytical.com

Department of Chemistry and Biochemistry

M.S. Program in Chemistry

M.S. Program in Biochemistry and

- Biotechnology ✓ All classes offered in the evening
- ✓ Affordable
- ✓ Research opportunities for credit available
- ✓ Professional Science Masters available in both
- programs interfacing chemistry, biochemistry and business

www.umsl.edu/chemistry



The *Chemical Bond* is published at www.stlacs.org January through May and September through December by the St Louis Section–American Chemical Society. If you would like to receive email notification when each issue is posted, you can subscribe to our email list and join the "Chemical Bond reminders" group.

Correspondence, letters to the editor, etc., should be emailed to editor@stlacs.org or mailed % St Louis Section–ACS, PO Box 410192, Saint Louis, MO 63141-0192.

Copyright © 2020 American Chemical Society and the St Louis Section–ACS

Jeramia Ory	314.446.8169 editor@stlacs.org
Eric Ressner	314.962.6415 editor@stlacs.org
Keith Stine	314.516.5346 advmgr@stlacs.org
Donna Friedman	314.513.4388 bizmgr@stlacs.org
	Jeramia Ory Eric Ressner Keith Stine Donna Friedman