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ASEE Chemical Engineering Division Newsletter

Editor: Elif Eda Miskioğlu, Bucknell University (elif.miskioglu@bucknell.edu)

A Message from the Chair:

Anthony Butterfield
University of Utah

In this issue…

Call for Community Announcements

Please send any announcements you'd like included in the Fall newsletter to elif.miskioglu@bucknell.edu. by **Sept. 1st!**

I feel fortunate to be chairing our division in one of the rare years in which our community will be able to attend the ASEE/AIChE Summer School for Engineering Faculty. This event will be July 24-29 at the Colorado School of Mines, in Golden Colorado (see the announcement in this newsletter for registration details). I would like to take this space to make a last-minute pitch to register for any young faculty who may be undecided about attending.

A decade ago my department chair sent me off to my first summer school at the University of Main. I was two years into teaching and each semester was still an act of turbulent improve, but this short week put some solid pedagogical ground under my feet. I picked up manageable and evidence-based strategies to improve as an educator on every aspect of my courses, from my syllabus to my midterm exams to my final course evaluations. There you will meet and learn from our community's top educators. If you are looking to solidify the education pillar for your tenure case, or looking to strengthen the broader impacts of your next proposal, the summer school is the rare opportunity you need.

More valuable, though, I found a professional community there. Engineering colleges and workplaces were not welcoming for gay men in decades past; the best I came to expect of colleagues was surface tolerance. But at the summer school I found a different view of engineering professionalism; I found a group of engineers, both in my fellow Summer School students and in the presenters, who cared deeply about the humane side of engineering. The engineers I met there became some of my favorite people, professional heroes and friends. If you are looking to travel to conferences more excited to reconnect with great people than adding a couple new lines to your CV, then the summer school is, again, where you should be this July.

Lastly, please vote in our elections (instructions sent out via email and in this newsletter), and I'll look forward to seeing old friends and new at the ASEE conference in Minneapolis and at the ASEE/AIChE Summer School for Engineering Faculty in Golden Colorado.

Anthony E Butterfield

Anthony (Tony, he/they) E. Butterfield

ASEE/AIChE Summer School for Engineering Faculty

Colorado School of Mines, Golden, CO • July 25 - 29, 2022

Are you faculty within the first five years of your instructional appointment? If so, save the date and register (https://bit.ly/3lulbtc) for the the 2022 **ASEE/AIChE Summer School for Engineering Faculty**, July 25-29th.

Reasons to Register

- **You'll have the opportunity to network and gain a community of peers that will serve as a resource in your career.**
- **Intensive 5 days of in-person sessions will reinforce learning and allow for opportunities for creative problem solving.**
- **You'll get a powerful toolkit that you can immediately apply to your teaching and research.**

Register Today

Session Topics

- Diversity & inclusion
- Scholarly development
- Professional development
- Service
- Pedagogy
- Course content
- Safety

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ASEE American Society for Engineering Education

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ChED Elections: Summary of Candidates

Candidate for Division Chair-Elect

Winner will serve as chair of ChE Division for 2022 - 2023

Reg Rogers
University of Missouri

Candidate for Director

Winner will serve as an advisor to the executive board for a term of 2 years

Chris Barr
University of Michigan

Vote here by Friday, June 24th!

ChED Elections: Candidate for Chair-Elect

Reg Rogers
University of Missouri

I am honored and humbled to have been identified as a candidate for the Chair-Elect position within the Chemical Engineering Division of ASEE. I have been a member of ASEE since 2004 as a graduate student at the University of Michigan. During my time as a graduate student, I was one of the founding members of the Student Constituent Committee. My primary role was as Programming Chair. Though we were small, we were a tenacious group of individuals who carried a vision of seeing students become fully integrated within ASEE. We worked tirelessly to grow from committee to a full division. Our success in creating the Student Division continues to be seen today, which I am excited to see. It is this same attitude that I would like to bring to the forefront as we move the Chemical Engineering Division to the next level over the next several years.

Currently, I am an Associate Professor at the University of Missouri. In my current role at Mizzou, and previous role at Rochester Institute of Technology (RIT), I instructed multiple Chemical Engineering courses. My primary courses have been focused in the areas of Material and Energy Balances, Separation Processes, and Unit Operations Laboratory. In all of these courses, I designed them to not only teach the fundamentals but force students to develop out-of-the-box thinking. Development of life skills, in addition to the technical skills, has proven invaluable to the students as they translate the knowledge to their real-world experiential learning, as noted by students after completing an internship or co-op opportunity. Through consistent assessment, these courses have provided a platform for other courses to build on top of the skills attained from these courses.

My involvement within the ASEE Chemical Engineering Division includes currently serving as Co-Chair of the Awards Committee. I also served as a Director and the Programming Chair for the Annual Meeting in Tampa, FL. As Director, I primarily focused on assisting the division where needed, and included reviewing nominations for multiple division awards. As Programming Chair, I was heavily engaged in developing the technical program and division banquet, both of which were a huge success. I am extremely grateful for the opportunity to serve in both roles as I have been able to gain useful insight into the growth and development of the division. In addition to my service within ASEE, I am also completing my term as Chair for the Nanoscale Science and Engineering Forum (NSEF) within the American Institute of Chemical Engineers (AIChE). If given the opportunity to serve as a Chair-Elect, I will leverage my connections within both organizations to help provide advisory knowledge to the Chemical Engineering Division executive leadership for further growth of the division.

Given the current societal challenges we are facing from a diversity, equity, and inclusion standpoint, I view the role of the Chair-Elect to help spearhead new collaborations that will produce tangible results to foster a true understanding of diversity, equity, and inclusion in their native forms. We must understand that each of these words are unique and cannot be made synonymous as one catch phrase. Too many organizations have done this, and in the process, have diluted the genuine meaning of practicing diversity, equity, and inclusion as it should be practiced with people from various groups (i.e. underrepresented minorities/BIPOC, LGBTQ+, women, people with disabilities, etc.). As someone who has been marginalized due to my identification as URM/BIPOC and LGBTQ+, I have a first-person perspective on the issues at hand. I continue to strongly support individuals who identify with these different groups to provide an authentic professional and personal relationship that allows them to be their true selves. If elected Chair-Elect, I envision new pathways to make diversity, equity, and inclusion transformative within the Chemical Engineering Division and beyond. This includes a “straight talk” session where educators can be open about their struggles within their own university where DEI is only talked about but not genuinely practiced. Such conversations will lead to opportunities for developing actionable items that can be addressed individually and as a group.

Thank you for this opportunity to be considered for the Chair-Elect position in the Chemical Engineering Division.

ChED Elections: Candidate for Director

Chris Barr
University of Michigan

I am honored to be nominated by my colleagues in the Chemical Engineering Division as a candidate for a Director position on the executive committee. Recently, I was reflecting on my very first engineering educational presentation which occurred while I was a graduate student at the University of Toledo in 2011. At that time and for the rest of my graduate school career, I did not realize that there was such as wide-spread and caring group of chemical engineering educators who were looking to improve the chemical engineering experience for both undergraduate students and graduate students.

A couple of years into my position at the University of Michigan managing and teaching the undergraduate CHE laboratories, I rediscovered the engineering education community through the ASEE conference which was happening right "down the road" in Columbus, Ohio. My original reason for attending my first ASEE conference was to see what interesting and innovative ideas were being presented and to tour the undergraduate labs of our "rivals" at The Ohio State University. It was at that conference that I realized that there are no rivals within the ASEE membership. My view of conferences before that conference was one of dread and anxiety for networking and being judged for my research. I was amazed to find a welcoming group of collaborative members who immediately took me in to their fold! Because of this experience, I decided to jump head-first and more actively engage in improving my laboratory and department as well as giving back to greater CHE academic world.

Since my first ASEE conference, my career and focus has changed tremendously. Much of my interest and implementation has been around improving safety, technical communication, and general student experience and responsibility within our labs. The collaborative nature of ASEE (and the AICHE Ed division) has been amazing and, in 2018, I began working with a multi-university effort to implement more process safety education within the Chemical Engineering laboratories. For this effort, our team was awarded the 2020 Joseph J. Martin Award for our work "Using Incident Reporting to Integrate Hazard Analysis and Risk Assessment into the Unit Operations Lab". It was amazing being recognized by our peers for all our hard work to improve safety in our labs, and hopefully in other labs as well.

To actively give back to our division, I joined the CHE division's membership committee and worked not only on efforts to maintain membership but also to help run annual membership drives to expand membership. Last year, I became the division's membership chair and, along with the other membership committee members, we initiated a membership drive reaching out to graduate students and post-docs to advertise the benefits of ASEE membership. Some of these graduate students and post-docs will be the faculty of tomorrow so it is important to show them that they are not alone when it comes to teaching and implementing teaching innovations.

I look forward to any occasion that I can participate with and possibly give back to the chemical engineering education world whether it be mentoring graduate students or attending membership committee meetings, conferences, the AICHE Education Division Lab Virtual Community of Practice, and (soon) the ASEE/AICHE Summer School. If elected, I believe that being a Director of the CHE division will give more opportunities to help improve the division for the benefit for all current and future members.

Vote here by Friday, June 24th!

CEE Corner

Now that the spring semester has ended, it is a really good time for you to put together that article you've been meaning to write…and submit it to *Chemical Engineering Education*. The summer issue is at the printer, while the fall issue is accounted for (including a special section on "Data Sciences in Chemical Engineering Education", taken from last year's sessions at the AIChE Annual meeting). However, 2023 (starting in the winter) is potentially available for those submitting manuscripts soon.

I would like to take this moment to thank all members of the Editorial Team and Publications Board for their efforts in support of the journal. Additionally, those members of our community who volunteer and accept reviewer requests from our Editorial Team – your insights and perspectives are greatly appreciated and always considered very carefully.

If you have any comments about the journal, suggestions, questions or just want to volunteer, drop us a line at cee@che.ufl.edu.

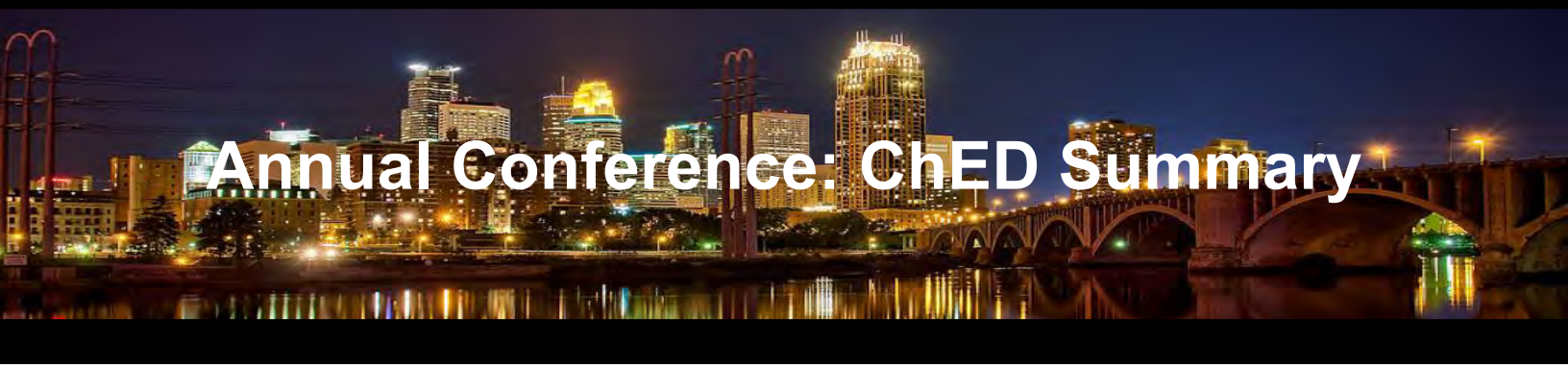
Don Visco
Editor, *CEE*

PS: That's the "proof" for the CEE shirt. They will be on sale in multiple sizes and two different colors (fall issue [blue] and spring issue [green]) in the near future.

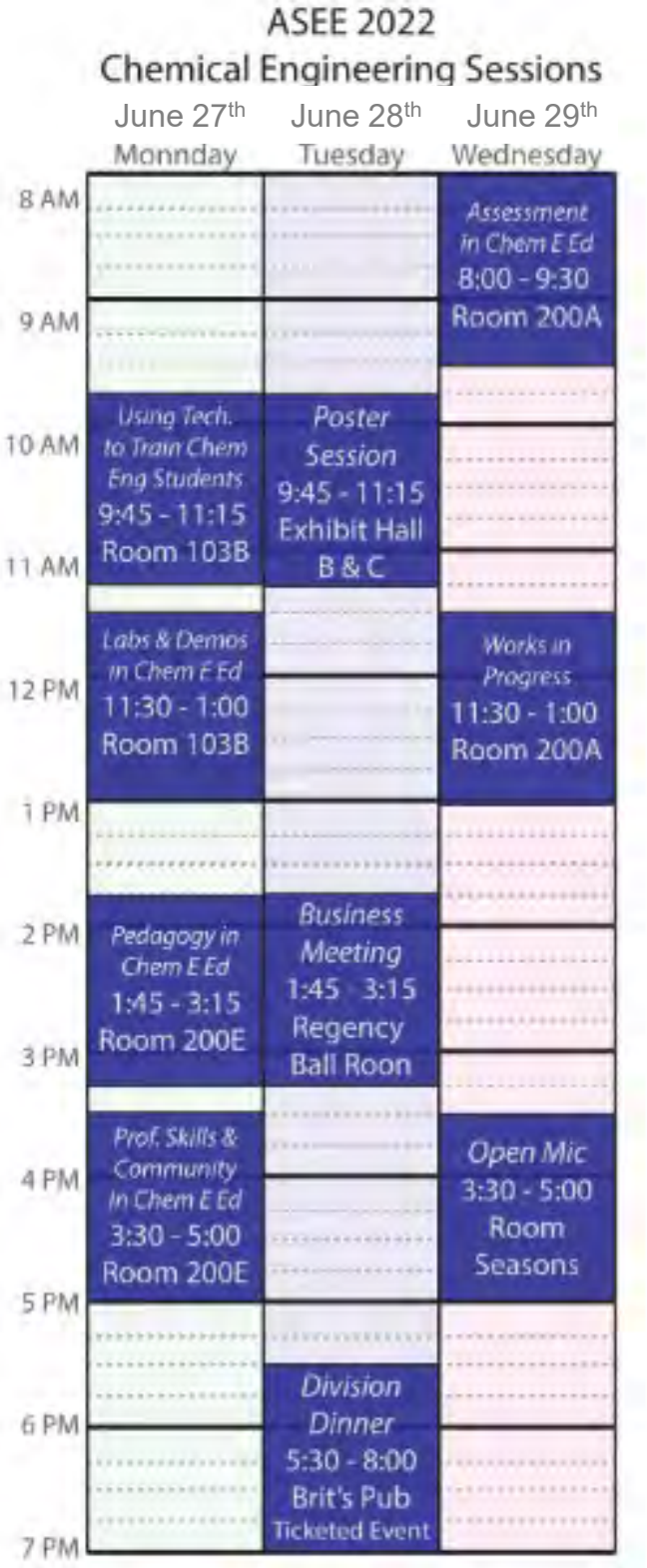
Reminder of Diversity, Equity and Inclusion (DEI) Requirements Upon Submission to CEE

Just a reminder that CEE issued a policy that requires authors to consider their work through "a DEI lens".

To meet this requirement, authors either have to discuss how their work is viewed from a DEI perspective within the submitted manuscript or in their letter of submission to the Editor. Manuscripts that do not meet this requirement will be returned to the authors for resubmission (and they have).



Annual Conference: ChED Summary



Thanks to our chair, Tony, for creating this handy summary of ChED events!

From ASEE:

Be advised that this year's Annual Conference is scheduled to be in-person. There is not a virtual option at this time. If that changes, an announcement will be made.

COVID-19 Requirements

Attendees must be vaccinated and have at least one booster shot and are reminded of their obligation under the Society's Code of Ethics when asked to attest to this status.

Unvaccinated persons may attend provided they wear a face mask throughout the conference except when actively eating or drinking. All individuals are welcome to wear a face mask per their health status and comfort level.

Annual Conference: ChED Special Events

Join ChE Division colleagues at one of our Celebrations or events!

Chemical Engineering Business Meeting

Tuesday, June 28h 1:45 PM to 3:15 PM, Regency Ballroom

This meeting is open to all existing and potential members of the Chemical Engineering Division. Feel free to stop by, meet division members, and help plan for the coming year.

Chemical Engineering Division Awards Banquet

Tuesday, June 28th 6:00 PM to 9:00 PM at Brit's Pub (1110 Nicollet Mall)*

Ticketed Event: $65.00 advanced registration
Join us for the presentation of this year's ChE Division awards!

*We're working to get the menu ahead of time to share. Stay tuned!

Chemical Engineering Division Open Mic

Wednesday, June 29th 3:30 PM to 5:00 PM Room Seasons, Convention Center

This informal session is open to a general audience and will be a free exchange of ideas, opportunities, and challenges within chemical engineering education.

Finding Slayte difficult to navigate? Us, too!
Here's how to find our sessions or a specific author

If your session is incorrectly listed here, or in SLAYTE, please reach out to Program Chair Jacqueline Gartner (burgher@campbell.edu) AND aseesupport@slayte.com.

Finding ChED Sessions:

Most of our sessions will show up if you search "chemical engineering" in the "Sessions" tab. Make sure to have "All" selected as it defaults to "next 12 hours"
Note: Searching "Chemical Engineering Division" will not yield all our sessions

Finding Sessions for a Specific Author:

Search for the author you're looking for under the "Participants" tab on the left. When they pop up, click on their picture/name and this will take you to their page. Scroll down, and you'll find their papers and sessions!

Annual Conference: ChED Sessions

Monday, June 27th

Utilizing Technology to Train Chemical Engineering Students

9:45 AM to 11:15 AM Room 103B, Convention Center

Global Projects: An Initiative to Train Chemical Engineering Students in Global Awareness
Joaquin Rodriguez and David Sanchez

Flipping classrooms, sowing seeds and developing confidence: teaching engineering judgement to undergraduate engineering students
Deesha Chadha and Klaus Hellgardt

Videos for Project Dissemination: Adopting Student-Written YouTube Problems in any Course
Matthew W. Liberatore and Uchenna Asogwa

Exploring Engineering Students' Decision Making Priorities in a Digital Plant Environment
Jeffrey Stransky, Cheryl A. Bodnar, Daniel D. Burkey, Daniel D. Anastasio, and Matthew Cooper

Unique and Randomized Quiz Generation for Enhanced Learning
Mark Burns, Valerie Johnson, and Kaylee Smith

Labs and Demonstrations in Chemical Engineering Education

11:30 AM to 1:00 PM Room 103B Convention Center

A hands-on experience to study membrane technology developed by undergraduate chemical engineering students
Natacha Souto-Melgar, Jackqueline Nichole Steinman-Ptacek, and Andie Veeder

Process Control Final Projects Inspired by Real Unit Operations Laboratory Modules
Lucas James Landherr and Courtney Pfluger

Design, Construction, Operation, and Analysis of a Chemical Engineering Unit Operations Laboratory Plate Heat Exchanger Experiment
Andrew Maxson and Michelle Lianne Stasik

Expanding chemical engineering laboratory course design for next-generation engineers
Jacqueline Mohalley-snedeker and Benjamin Galfond

Introducing Prototyping to First Year Chemical Engineers Through Hands on Activities
Julianne Vernon, Amy Pang, Samuel Christopher Leville, and Allison A. Cannatti

Development and Implementation of a Low-Cost, Visual Evaporative Cooling Desktop
*Paper not listed in SLAYTE, author information unavailable at time of newsletter

Annual Conference: ChED Sessions

Monday, June 27th continued…

Pedagogy in Chemical Engineering Education

1:45 PM to 3:15 PM Room 200E, Convention Center

Importance of Feedback in Introductory Thermodynamics: A Trial in Case in Flipped Classroom Instruction
Stuart Adler

Assessing Embedded Process Safety Curriculum Within Core Chemical Engineering Courses
Laura Hirshfield

An Undergraduate Research Methods Class: Results and Experiences from Initial Offerings
Lori Ann Howe and Joseph Holles

Doing Design Differently: Hybrid Teaching in the age of COVID-19
Deesha Chadha, Daryl Williams, Colin Paul Hale, and Paul Frederick Luckham

Animation Analytics in an Interactive Textbook for Material and Energy Balances
Matthew W. Liberatore and Kevin S. Xu

How We Teach: Material and Energy Balances
*Paper not listed in SLAYTE, author information unavailable at time of newsletter

Professional Skills and Community Building in Chemical Engineering Education

3:30 PM to 5:00 PM Room 200E, Convention Center

Insights and Outcomes from a Revolution in a Chemical Engineering Department
Vanessa Svihla, Eva Chi, Abhaya K. Datye, Yan Chen, Catherine Ann Hubka, and Madalyn Wilson-fetrow

Outreach Projects: Towards a Structured Curricular Activity for Chemical Engineering Students
Joaquin Rodriguez

Impacts of implementing up-to-date industry problems on engineering identity development
Betul Bilgin, James W Pellegrino, Cody Wade Mischel, and Lewis E Wedgewood

Incorporation of Research & Development-Focused Professional Skills in a Chemical Engineering Elective Course
Deborah Sweet Goldberg

Redesigning to Foster Community in an Online Introductory Chemical Engineering Course
*Paper not listed in SLAYTE, author information unavailable at time of newsletter

Annual Conference: ChED Sessions

Tuesday, June 28th

Poster Session

9:45 AM to 11:15 AM Exhibit Hall B & C, Convention Center

Teacher Impact on Student Learning Using LC-DLM Implementations in the Classroom
Heidi Curtis, Jacqueline Gartner, Prashanta Dutta, Olusola Adesope, Bernard J. Van Wie, and Carah Elyssa Watson

Can the COVID-19 pandemic boost collaborative online international learning (COIL) in engineering education? – A review for potential implementations
Erick Vasquez and Erick Ramos

[redacted]: Embedding process safety modules within core CHE courses
Chris Barr and Laura Hirshfield

Wednesday, June 29th

Assessment in Chemical Engineering Education

8:00 AM to 9:30 AM Room 200A, Convention Center

Assessment of Changes in Confidence and Judgements of Problem-Solving Processes in Senior Level Chemical Engineering Students
Jessica Pittman, Sheima Khatib, and Roman Taraban

The Effects of Prior Knowledge on Learning with Low-Cost Desktop Learning Modules
Carah Watson, Jacqueline Gartner, Bernard J. Van Wie, Prashanta Dutta, Olusola Adesope, and Heidi Curtis

ConcepTest Questions Created By Students For Students: Improving Student Learning And Addressing A Need In Process Control
Lucas James Landherr

Consequential Agency in Chemical Engineering Laboratory Courses
Vanessa Svihla, Stephanie Wettstein, Jennifer Brown, Eva Chi, and Madalyn Wilson-fetrow

Contextualized Self-Regulated Learning: Chemical Engineering Students' Learning Experiences in a Materials and Energy Balances Course
Araoluwa Adaramola and Allison Godwin

Session papers continued on next page….

Annual Conference: ChED Sessions

Wednesday, June 29th continued…

Can I have More Problems to Practice? Part 2. Student Success Related to Auto-graded, End-of-chapter YouTube Problems in a Material and Energy Balances Course
Matthew W. Liberatore and Kayla Chapman

Works-in-Progress: Chemical Engineering

11:30 AM to 1:00 PM Room 200A, Convention Center

Work-in-Progress: Improving Safety Education for Undergraduate Chemical Engineers
George Prpich

Work-In-Progress: Changing the Goal Structure in a Problem-Solving Course
Carl Lund

Work-in-Progress: Identifying unit operations laboratory curriculum needs
Sarah Wilson, Amy J Karlsson, Janie Brennan, and Joanne Kay Beckwith

Work-in-Progress: Implementation of a Biomedical Hands-On Learning Tool in Chemical Engineering Courses and Effects on Student Motivational and Conceptual Gains
Kitana Kaiphanliam, Bernard J. Van Wie, Olusola Adesope

Work-in-Progress: Student reactions to an Open Textbook on Mass and Energy Balances
*Paper not listed in SLAYTE, author information unavailable at time of newsletter

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See you, in person, in Minneapolis!

Community Announcements

Opportunity for Faculty: Process Safety Workshops

AICHE/CCPS is offering free Process Safety Workshops this summer at BASF in July and Chemours in August. Faculty just need to cover the cost of travel. Hotel and meals are covered by the workshop.

The AICHE Lab VCP meets weekly on Thursday from 11-12pm ET. Feel free to drop in and say hi and talk about whatever chemical engineering and teaching thoughts are on your mind. New faculty welcome! https://northeastern.zoom.us/j/92921025498?pwd=RVc4RC8yc2VDQThUTldBZU9QRmxsZz09

Teaching Computation Workshop

Mathworks is sponsoring a workshop in October where faculty from different universities and departments get together (this year virtually, October 16-18) to create curriculum modules using MATLAB. MathWorksp engineers support the faculty throughout the event. The event is free, but application/registration required. Applications are open now till June 15th, 2022.

https://serc.carleton.edu/teaching_computation/workshop_oct_2022/index.html

Meetings & Speakers

Annual Sigma Xi meeting:
https://www.experienceifore.org/
Plenary speakers https://www.experienceifore.org/key-speakers (4 ChEs)

AIChE Warren K Lewis Symposium in Phoenix: Look for this at the AIChE Annual Meeting!

Photo Credits: **Spring at the White House:** Joyce Boghosian, **Minneapolis Skyline:** Photomatt28, **Community Announcements** **ASEE Conference Logo**: ASEE, **Summer School Photo:** Lisa Bullard

Job Opening

Chemical Engineering Lecturer
Dept. of Energy, Environmental & Chem. Engr.
Washington University in St. Louis

We are looking to hire a full-time Lecturer to teach chemical engineering courses and help with other educational initiatives starting as early as Spring 2023. Full details of the position and instructions for applying can be found here: https://engineering.wustl.edu/faculty/openings.html#EECE
Applications received by August 1 will be given priority.

Call for Participation

Dear Colleagues,

I am part of a team of researchers at Auburn University studying student problem-solving in engineering science courses. We have developed a novel assessment of problem-solving in heat transfer that we believe captures students' problem-solving skills in real-world contexts. This research will inform new changes in heat transfer courses to better teach students problem-solving skills.

We are looking for faculty and industry experts in the field of heat transfer to help us validate an assessment of problem-solving in the context of an undergraduate heat transfer course. If you do research in the area of heat transfer, thermal fluids, continuum mechanics, etc. (particularly if you focus on biological applications) - we need your help! We are asking for volunteers to participate in 1-hour think-aloud Zoom interviews with our research team. You can sign up for a time here: https://calendly.com/jiaminz/heat-transfer-interview

Your responses will be recorded and we will video record the session, but your identity will be masked in the publication or presentation of any results.

If you have any questions or need more information, please email me: jzz0138@auburn.edu Many thanks in advance for your help!

Best regards,
Jiamin Zhang