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ASEE Chemical Engineering Division Newsletter

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

A Message from the Chair:

Ashlee N. Ford Versypt
University at Buffalo

In a year full of so much uncertainty, unusual demands on our time, and just everything of 2020-2021, we are greatly impressed by all of those who were able to prepare papers for this year's conference. We are also so thankful to the many reviewers for the Chemical Engineering Division and for all who helped with programming for the virtual annual meeting. We look forward to virtually connecting with our community now and again in person when we next can safely do so. It's been an incredible honor to serve as your Division Chair. We all look forward to the leadership of our incoming Chair Tony Butterfield.

Ashlee Ford Versypt

In this issue…

Call for Community Announcements

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

ChED Elections: Results

Chair-Elect

Will serve as chair of ChE Division for 2022-2023

David Silverstein
University of Kentucky

Director

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

Elif Eda Miskioğlu
Bucknell University

Thank you to all of our candidates!

Thank you also to our officers rotating out of roles – Matthew Cooper (Past Chair), Reginald Rogers (Director), and Ashlee Ford Versypt (Chair, soon to be Past Chair). Your service is greatly valued!

CEE Corner

The Winter 2022 issue of *Chemical Engineering Education* (CEE) will be a special issue related to how our community has responded to the COVID-19 pandemic. The papers are currently in the last stages of reviews with some on the verge of being copyedited (and, ultimately, typeset). It is noted that as they are typeset (and approved), they will move into the "Ahead of Print" category on the CEE website, making them available to access prior to formal publication. CEE started making articles available as soon as publishable in May and we hope that this advanced access to our subscribers is beneficial to our readers and authors alike.

At any rate, CEE has had a few special issues (or special sections of issues) over the past several years, including one to honor the 50th anniversary of CACHE (Summer 2020) and one on Diversity (Spring 2018). Since I have been on the Editorial Staff, we seemingly always have one special issue in the works. If you have an idea for a special issue, please reach out to me directly to discuss (cee@che.ufl.edu will always work). That is the first step in the process. A special issue requires an external editor, in addition to work from one of our Assistant Editors assigned to special issues (Allison Godwin).

I would also like to remind everyone that the CEE archives are now searchable. Here is the direct link to the archives: https://journals.flvc.org/cee/issue/archive and there is a search function that allows you search by words, author and/or by date ranges.

As always, I would like to remind you that all articles, except for editorials and the "Drawn to Engineering" comic, are externally reviewed. We welcome your submissions to the journal of our division. To submit your article, please follow the submission steps: https://journals.flvc.org/cee/about/submissions

Don Visco
Editor, *CEE*

Conference program details begin on the next page!

Monday, July 26th

M405: Learning Outcomes and Assessment Within Chemical Engineering

1:15 PM to 2:45 PM PDT

Moderators: Dr. VJ Tocco and Dr. Matthew Cooper

1. **Exploration of a Nontraditional Assessment Method Using a Participatory Approach**
   Dr. Tamara Floyd Smith (Tuskegee University)
2. **How We Teach: Kinetics and Reactor Design**
   Dr. Laura P. Ford (The University of Tulsa), Dr. Janie Brennan (Washington University in St. Louis), Dr. David L. Silverstein P.E. (University of Kentucky), Dr. Lucas James Landherr (Northeastern University), Dr. Christy Wheeler West (University of South Alabama), Dr. Stephen W. Thiel (University of Cincinnati), Dr. Kevin D. Dahm (Rowan University), Dr. Jennifer Cole (Northwestern University), and Prof. Marnie V. Jamieson (University of Alberta)
3. **Introducing Partial Differential Equations and Their Numeric Solution Prior to Transport Courses**
   Dr. Jason C. Ganley (Colorado School of Mines)
4. **Problem Solving and Difficulty Perception in YouTube Problems Involving Reacting Systems with Recycle**
   Uchenna Asogwa (The University of Toledo), Mr. Timothy Ryan Duckett (The University of Toledo), Dr. Amanda Portis Malefyt (Trine University), Dr. Gale A. Mentzer (Acumen Research and Evaluation, LLC), and Prof. Matthew W. Liberatore (The University of Toledo)
5. **Work in Progress: Creative Projects Supplementing Exams so Students Can Better Demonstrate Their Understanding**
   Dr. Lucas James Landherr (Northeastern University)

M505: Experiential Learning in Chemical Engineering

3:00 PM to 4:30 PM PDT

Moderator: Dr. VJ Tocco and Dr. Ashlee N Ford Versypt

1. **Impact of Immersive Training on Senior Chemical Engineering Students' Prioritization of Process Safety Decision Criteria**
   Jeffrey Stransky (Rowan University), Caleb Hill (Affiliation unknown), Robert John McErlean (Rowan University), Jacob Willetts (Rowan University), Landon Bassett (University of Connecticut), Dr. Daniel D. Anastasio (Rose-Hulman Institute of Technology), Dr. Daniel D. Burkey (University of Connecticut), Dr. Matthew Cooper (North Carolina State University at Raleigh), and Dr. Cheryl A. Bodnar (Rowan University)
2. **Incorporation of Sustainability Education into the Ammonia Synthesis Process Design of the Chemical Engineering Senior Design Course**
   Dr. Jia Li (California State Polytechnic University, Pomona)

Session papers continued on page 5…

Monday, July 26th continued…

3. Integrating a Laboratory into a First-semester Introduction to Chemical Engineering Course
Dr. Susan M. Stagg-Williams (The University of Kansas), Dr. Molly McVey (The University of Kansas), Mr. Andrew David Yancey (The University of Kansas), Mr. Akash Anand (The University of Kansas), and Mr. Arthur A. Lee (The University of Kansas)

4. Qualitative Analysis of Skills in a CHE Laboratory Course
Dr. Heather C. S. Chenette (Rose-Hulman Institute of Technology), Dr. Daniel D. Anastasio (Rose-Hulman Institute of Technology), and Dr. Gregory T. Neumann (Rose-Hulman Institute of Technology)

5. Virtual Fluidization Labs to Assist Unit Operations Courses
Prof. David R. Wagner (San Jose State University) and Fanny Huang (Affiliation unknown)

Tuesday, July 27th

T205: Works in Progress in Chemical Engineering Education

9:45 AM to 11:15 AM PDT

Moderators: Dr. VJ Tocco and Dr. Ashlee N Ford Versypt

1. Work in Progress: Active Learning Techniques for Online Teaching of Chemical Engineering Courses
Dr. Erick S. Vasquez (University of Dayton) and Dr. Michael J. Elsass (University of Dayton)

2. Work in Progress: Wrappers vs. Experts
Prof. Carl F. Lund (University at Buffalo)

3. Work in Progress: Evaluation of a Remote Undergraduate Research Experience in Chemical Engineering
Dr. Sarah E. Zappe (Pennsylvania State University), Dr. Enrique D. Gomez (Affiliation unknown), Prof. Scott T. Milner (Affiliation unknown), and Ms. Yu Xia (Affiliation unknown)

4. Work in Progress: Techniques for Including Chemical Process Safety and Environmental Compliance in a Chemical Engineering Capstone Design Course
Dr. Matthew Lucian Alexander P.E. (Texas A&M University, Kingsville) and Dr. Joseph Amaya (Affiliation unknown)

5. Work in Progress: Identifying Success Factors for Chemical Engineering Sophomores and Testing the Effects of an Intervention
Dr. Brad Cicciarelli (Louisiana Tech University), Eric Sherer (Corteva Agriscience), and Dr. Marisa K. Orr (Clemson University)

6. Work in Progress: Modeling the Effect of Hematocrit on Blood Cell Separations Using a Hands-on Learning Device and Microbead Blood Simulant
Kitana Kaiphanliam (Washington State University), Mrs. Olivia Reynolds (Washington State University), Olufunso Oje (Washington State University), Dr. Olusola Adesope (Washington State University), and Prof. Bernard J. Van Wie (Washington State University)

Tuesday, July 27th continued…

T305A: ChED Executive Board Meeting

This session is cancelled due to holding the Exec Board Meeting outside the conference in advance. .

T305B: Teaching Professional Skills in Chemical Engineering

11:30 AM to 1:00 PM PDT

Moderator: Dr. VJ Tocco

1. **Integrating Design Thinking in Chemical Engineering Coursework for Enhanced Student Learning**
   Mr. Jake Patrick Stengel (Rowan University), Miss Swapana Subbarao Jerpoth (Rowan University), and Dr. Kirti M. Yenkie (Rowan University)
2. **Pilot: "Success is a State Function"—Ways of Viewing Student Success**
   Robert Wayne Gammon-Pitman (Ohio State University) and Lin Ding (Ohio State University)
3. **Using Existing University Resources: Integration of the University Writing Center into a Senior-level Laboratory Series for Improved Learning Outcomes**
   Prof. Stephanie G. Wettstein (Montana State University - Bozeman) and Dr. Jennifer R. Brown (Montana State University - Bozeman)
4. **Kidney and Lung Demonstrations to Introduce Engineering Concepts to Middle School Students and Their Grandparents**
   Dr. Ashlee N. Ford Versypt (University at Buffalo), Samantha Lyn Carpenter (Oklahoma State University), Mr. Troy Lamarr Adkins II (Oklahoma State University), Mr. Ted Anderson Sperry (Oklahoma State University), and Dr. Yu Feng (Oklahoma State University)

T405: Chemical Engineering Division Business Meeting

1:45 PM to 3:15 PM PDT

T505: Promoting Mental Health and Wellness in Undergraduate Engineers

3:30 PM to 5:000 PM PDT

Moderator: Dr. VJ Tocco, Dr. Ashlee N Ford Versypt, and Dr. Sarah A Wilson

1. **Dr. Sarah A Wilson**
   University of Kentucky
   Dr. Wilson is a Lecturer in the Chemical and Materials Engineering Department at the University of Kentucky. In this role, she ensures her students leave each course with a strong understanding of fundamental theory and how it applies to practical problem solving in chemical engineering. She integrates communication, teamwork and problem solving into each of her courses. Her research portfolio is designed around three core focus areas: 1) industry communication, 2) process safety and 3) mental health in undergraduate engineering student populations.

Wednesday, July 28th

W105: Chemical Engineering Pedagogy

8:00 AM to 9:30 AM PDT

Moderators: Dr. VJ Tocco and Dr. Reginald E Rogers Jr

1. **Attitudes Toward and Usage of Animations in an Interactive Textbook for Material and Energy Balances**
   Mr. Sidney Jay Stone III P.E. (The University of Toledo) and Prof. Matthew W. Liberatore (The University of Toledo)
2. **Can I have More Problems to Practice? Student Usage and Course Success Related to Auto-graded, End-of-chapter Problems in a Material and Energy Balances Course**
   Kayla Chapman () and Prof. Matthew W. Liberatore (The University of Toledo)
3. **Learning Strategy and Verbal-Visual Preferences for Chemical Engineering Students**
   Dr. Charles E. Baukal Jr. P.E. (John Zink Co. LLC)
4. **What Kinds of Advice do Chemical Engineering Students Give to Future Students for Success in High-structure Courses?**
   Dr. Justin Shaffer (Colorado School of Mines)
5. **Work in Progress: Designing a Chemical Reaction Engineering Course to Teach Problem Solving**
   Dr. Eric Burkholder (Stanford University), Mr. Francis Ledesma (Affiliation unknown), and Miss Julie C. Fornaciari (University of California, Berkeley)

W205: Chemical Engineering Division Poster Session

9:45 AM to 11:15 AM PDT

Moderator: Dr. VJ Tocco and Dr. Ashlee N Ford Versypt

1. **Work-in-Progress: The Design of Up-to-Date Industry Problems for a Sophomore Chemical Engineering Course: Challenges and Gains of Industry Mentors**
   Dr. Betul Bilgin (The University of Illinois at Chicago), Prof. James W. Pellegrino (The University of Illinois at Chicago), and Dr. Vikas Berry (The University of Illinois at Chicago)
2. **Work in Progress: Teamwork Skills Development in ChemE Car**
   Mr. Declan Thomas Mahaffey-Dowd (University of California, Berkeley), Dr. Shannon Ciston (Lawrence Berkeley National Laboratory), and Negar Beheshti Pour (University of California, Berkeley)

W405: Inclusion in Chemical Engineering: Reflections from the Conversation Series on Inclusion and Thriving

1:45 PM to 3:15 PM PDT

The ASEE Chemical Engineering Division held a weekly discussion group during the 2020-2021 academic year called the Conversation Series on Inclusion and Thriving. This session is designed to reflect on what the participants got out of the series and actions that can be incorporated into diversity, equity, and inclusion efforts in chemical engineering programs and in the discipline more broadly.

Wednesday, July 28th continued…

W505: Business and Professional Literacy Within Chemical Enigneering

3:30 PM to 5:00 PM PDT

Moderators: Dr. VJ Tocco, Dr. Ashlee N Ford Versypt, and Prof. Anthony Butterfield

1. **Chemical Engineers' Experiences of Ethics in the Health Products Industry**
   Ms. Dayoung Kim (Purdue University at West Lafayette) and Dr. Alison J. Kerr (University of Illinois Urbana Champaign)
2. **Engineering Students' Perceptions of Their Role in the University Organization**
   Benjamin Goldschneider (Virginia Polytechnic Institute) and Dr. Nicole P. Pitterson (Virginia Polytechnic Institute)
3. **Organizational Citizenship Behavior and Care in Chemical Engineering**
   Mrs. Kristen Ferris (University of New Mexico), Dr. Pil Kang (University of New Mexico), Ms. Madalyn Wilson-Fetrow (University of New Mexico), Dr. Vanessa Svihla (University of New Mexico), Prof. Eva Chi (University of New Mexico), Dr. Jamie Gomez (University of New Mexico), Dr. Yan Chen (University of New Mexico), Dr. Susannah C. Davis (University of New Mexico), Prof. Sang M. Han (University of New Mexico), and Dr. Abhaya K. Datye (University of New Mexico)
4. **Partnerships Between Preprofessional Student Groups and Your Unit**
   Dr. Joseph H. Holles (University of Wyoming)

Thursday, July 29th

T105: Virtual Instruction of Chemical Engineering Courses

8:00 AM to 9:30 AM PDT

Moderator: Dr. VJ Tocco and Dr. Janie Brennan

1. **Operation and Student Perceptions of a Large-scale, In-person Unit Operations Laboratory Course During the Covid-19 Pandemic**
   Dr. Andrew Maxson (The Ohio State University)
2. **Development of an At-home Metal Corrosion Laboratory Experiment for STEM Outreach in Biomaterials During the Covid-19 Pandemic**
   Mr. Christopher James Panebianco (Icahn School of Medicine at Mount Sinai), Prof. James C. Iatridis (Icahn School of Medicine at Mount Sinai), and Prof. Jennifer Weiser (The Cooper Union)
3. **Student Responses to Remote Teaching During the Covid-19 Pandemic: Implications for the Future of Online Learning**
   Dr. Milo Koretsky (Oregon State University)

Session papers continued on page 9…

Thursday, July 29th continued…

W505: Business and Professional Literacy Within Chemical Enigneering

3:30 PM to 5:00 PM PDT

Moderators: Dr. VJ Tocco, Dr. Ashlee N Ford Versypt, and Prof. Anthony Butterfield

4. Transition of an Interactive, Hands-on Learning Tool to a Virtual Format in the Covid-19 Era

Mrs. Olivia Reynolds (Washington State University), Kitana Kaiphanliam (Washington State University), Olufunso Oje (), Aminul Islam Khan (Washington State University), Jacqueline Gartner Ph.D. (Campbell University), Dr. Prashanta Dutta (Washington State University), Dr. Olusola Adesope (Washington State University), Prof. Bernard J. Van Wie (Washington State University), David B. Thiessen (Washington State University), and Dr. Kristin Bryant (Washington State University)

5. Innovative Use of Technologies to Teach Chemical Engineering Core Classes and Laboratories During the Covid-19 Pandemic at an HBCU

Dr. Rupak Dua (Hampton University)

Congratulations to our Donald Woods Lectureship Award for Lifetime Achievement in Chemical Engineering Pedagogy Recipients!

Milo Koretsky
Tufts University

Taryn Melkus Bayles
University of Pittsburgh

Read more about them, and their talks, on page 10!

Donald Woods Lectureship Award in Chemical Engineering Pedagogy
Thursday, July 29th

The Donald Woods Lectureship Award for Lifetime Achievement in Chemical Engineering Pedagogy recognizes the outstanding achievement of an individual through improvements of lasting influence to chemical engineering education.

R305: Dr. Milo Koretsky, Tufts University

11:30 AM to 1:00 PM

Milo Koretsky received his BS and MS degrees from UC San Diego and his PhD from UC Berkeley, all in chemical engineering. Prior to joining Tufts University in April 2021, he was a faculty member in the Department of Chemical, Biological, and Environmental Engineering at Oregon State University (OSU). Koretsky began his career pursuing canonical chemical engineering research focusing on plasma processes and thin film materials research. In a mid-career transition, he switched to engineering education research where he led the transition of the curriculum in chemical, biological, and environmental engineering to a studio model and led the development of technology based instructional tools such as the Concept Warehouse. He is author of the popular textbook, Engineering and Chemical Thermodynamics.

R505: Dr. Taryn Melkus Bayles, University of Pittsburgh

3:30 PM to 5:00 PM

Taryn Melkus Bayles is a non-tenure stream (NTS) Professor of Chemical and Petroleum Engineering, and has formerly served as the Chair of the American Institute of Chemical Engineers Education Division. She has spent part of her career working in industry with Exxon, Westinghouse and Phillips Petroleum. Her industrial experience has included process engineering, computer modeling and control, process design and testing, and engineering management. She has also spent over 20 years teaching Chemical Engineering at the University of Nevada Reno, University of Pittsburgh, University of Maryland College Park and University of Maryland Baltimore County. In her courses she incorporates her industrial experience by bringing practical examples and interactive learning to help students understand fundamental engineering principles.

Her research focuses on Engineering Education and Outreach to increase awareness of and interest in pursuing engineering as a career, as well as to understand what factors help students be successful once they have chosen engineering as a major. She is the co-author of the INSPIRES (INcreasing Student Participation, Interest and Recruitment in Engineering & Science) curriculum, which introduce high school students to engineering design through hands-on experiences and inquiry-based learning with real world engineering design challenges. This curriculum targets the International Technology and Engineering Education Association Standards as well as well as the National Next Generation Science Standards and aligns with the Framework for K-12 Science Education.

Community Announcements

Lecturer Position – Washington University in St. Louis

Lecturer in the Department of Energy, Environmental & Chemical Engineering at Washington University in St. Louis We are looking to hire a full-time Lecturer to teach environmental and/or chemical engineering courses and help with other educational initiatives starting next spring. 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 13 will be given priority.

Congratulations to Reg Rogers!

Our colleague, Reg Rogers, has received the 2021 Mentor on the Map Award from the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers.

This award recognizes Reg's dedication to research, commitment to the educational development of others, and passion for STEM.

Way to go, Reg!

Reg Rogers
University of Missouri

See you at ASEE!

Photo Credits: **Spring at the White House:** Joyce Boghosian, **ASEE Conference Logo**: ASEE, **Summer School Photo:** Lisa Bullard