

ASEE Chemical Engineering Division Newsletter



Editor: Matthew Cooper (mecoope3@ncsu.edu), North Carolina State University

A Message from the Chair:



Christi Patton-Luks
Missouri University of
Science and Technology



Another academic year is screeching to a stop and summer yawns in front of us. I love teaching and interaction with students, but the summer is my renewal time. I can catch up on reading all of those articles that stacked up during the last hectic weeks of the school year. I have time to analyze the data gathered during the academic year and make plans for my next great idea. Attending the ASEE annual conference always provides inspiration as I anticipate the next year.

I am excited to see many of you in New Orleans in a few weeks. I have always loved visiting the city for its interesting history, wonderful food, lively music, and festive energy. On a recent trip through New Orleans, my husband and I enjoyed a fabulous lunch at the Grand Isle restaurant. This will be a terrific venue for our Awards Banquet on Monday night. Thanks to Joseph Shaeiwitz who coordinated this event, we will be trying a new format that should enable people to better network. ASEE has started a new Dinner Club, but the ChE division is way ahead of them. We've been doing this for years. On Tuesday night, after the last session, meet us outside of Room 267 to select a restaurant for a casual, dutch-treat dinner with old and new friends. Arthur Felse has arranged for five technical sessions plus an

expanded poster session along with the annual business meeting. Be sure to include these in your planning for the conference.

I hope you begin your visit to the conference by stopping by the Division Mixer on Sunday evening. Stop by and visit with division officers. There are some fun new additions to the conference schedule such as the Ideas at Play sessions. There continue to be opportunities to learn more about how to handle diversity and training sessions for Safe Zone training. Be sure to look at the complete conference schedule. While at the conference, there will be opportunities to participate in ongoing discussions of the proposed ABET changes. If you have an interest in this, it is a good way to have your voice heard or to learn about how these changes may affect you.

Finally, I want to invite you to visit the chemical engineering division website at ched.asee.org. Tony Butterfield has worked hard this year to move us to a new platform and update the content. It is a great new layout and easy to use. You can learn more about Summer School 2017 while you are there.

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Community Announcements

Page 10 – **be sure to send
any announcements
you'd like posted in the
newsletter to
mecoope3@ncsu.edu!**

2016

ELECTIONS

FOR
ASEE

OFFICERS

- **Candidate for Division Chair-Elect:**

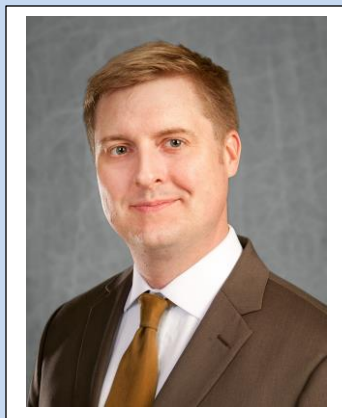
- *Winner will serve as chair of ChE Division for 2017-2018*



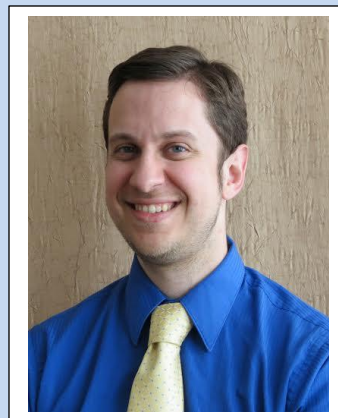
Troy Vogel
University of Illinois

- **Candidates for Director (choose one):**

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



Matthew Cooper
*North Carolina
State University*



Joshua Enszer
*University of
Delaware*

Candidate for Division Chair-Elect

Troy Vogel

Lecturer

Department of Chemical and Biomolecular Engineering

University of Illinois

Email: tvogel@illinois.edu



I am very grateful for being nominated to run for Chair-Elect of the Chemical Engineering Division of ASEE. I attended the ASEE Chemical Engineering Summer School in 2012 as a brand new Lecturer in the Department of Chemical and Biomolecular Engineering at the University of Illinois at Urbana-Champaign. The Summer School was invaluable to me and I believe is one of the best things for a new collegiate educator to experience. As part of the non-tenure track faculty at UIUC, I have a particular interest in engaging NTT faculty and encouraging their unique contributions to the body of knowledge in engineering education, through participation in the Summer School and ASEE in general.

I earned my PhD in Chemical Engineering from The Ohio State University in summer 2011 and have been a Lecturer at UIUC since fall 2011. Each semester I teach senior capstone design. I additionally implement mini team based design projects throughout our core curricular courses and teach other courses where needed, most frequently process controls and the freshmen intro to the CHBE profession. This year has been my most successful to date in teaching, earning the Excellence in Teaching Award by the School of Chemical Sciences and earning a spot on the List of Teachers Ranked as Excellent by the Center for Teaching Excellence, both at UIUC.

Since 2014 I have been a Program Evaluator within ABET on behalf of AIChE. Additionally I advise our student AIChE chapter, the ChemE car team, and the local Omega Chi Epsilon chemical engineering honors society. My two most recent contributions to ASEE include a discussion addressing the safety requirement in the ABET program criteria and developing true interdisciplinary design projects between sophomore CHBE and BIOE students, assessing teaming skills within. I look forward to contributing my skills to the leadership of the Chemical Engineering Division. Thank you for considering my candidacy.

Visit <http://ched.asee.org/asee-chemical-engineering-division-2016-election/> by June 3 to cast your ballot!

Candidate for Director

Matthew Cooper

*Teaching Assistant Professor
Department of Chemical and Biomolecular Engineering
North Carolina State University
Email: mecoope3@ncsu.edu*



Yes, it's me, your humble newsletter editor! I am excited to be considered for Director of the Chemical Engineering Division of ASEE. Prior to joining the faculty at NC State in Spring 2011 I received degrees in Chemical Engineering from West Virginia University (BS) and Ohio University (MS and Ph.D.). While in graduate school, I took every opportunity to serve as an instructor, TA or writing tutor in my free time. I enjoyed helping students understand various topics and was proud to observe their learning. After graduating with my Ph.D., I took a position with RTI International and for several years developed the exciting energy technologies for which my classes and research had trained me. However, something unexpected happened during my time as a professional researcher – I realized I didn't really like it, because simply put, I missed teaching. I made the risky decision to change the focus of my career from research to education, and I am thoroughly satisfied with my decision.

I have been fortunate to establish a good rapport with my students at NC State. My teaching has been recognized internally by an NCSU Outstanding Teacher Award and election to the NC State Academy of Outstanding Teachers, as well as externally by a regional outstanding teaching award from ASEE. I am also dedicated to completing thoughtful and significant research in the engineering education field. I am a regular attendee, moderator and presenter at ASEE meetings and have published two articles in Chemical Engineering Education. My paper submitted to the 2012 ASEE Annual Meeting with Lisa Bullard won the Joseph J. Martin Award for best paper in the division. I have also provided volunteer service to our profession: I have served CHED as Newsletter Editor since Fall 2013, serve as an ABET evaluator for AIChE and have volunteered to be Social Chair for the upcoming 2017 ASEE CHED Summer School.

Based on my experience and dedication to volunteer service in ChE education I am a good fit for this position. If elected, I will work to ensure that the 2017 ASEE CHED Summer School is successful not only in spreading the word of effective teaching for new ChE faculty, but also attracting new members for our division. I will work to heighten morale and enjoyment for members at future ASEE conferences through organizing additional informal social opportunities such as this year's dutch treat dinner and nightly opportunities for interested CHED members to gather (perhaps at a local pub or sporting event). I also see opportunities for increased collaboration among division members and improved dissemination of best teaching practices and resources. Thanks for this opportunity and your consideration.

Candidate for Director

Joshua Enszer

*Assistant Professor of Instruction
Department of Chemical and Biomolecular Engineering
University of Delaware
Email: enszer@udel.edu*



I am grateful to be considered for the open Director position in ASEE's Chemical Engineering Division. I earned my chemical engineering degrees from Michigan Technological University (BS, 2005) and the University of Notre Dame (MS, 2008; PhD, 2010). I am the first Assistant Professor of Instruction in the Department of Chemical and Biomolecular Engineering at the University of Delaware. Prior to my current appointment, I was a Lecturer in chemical engineering at the University of Maryland, Baltimore County. In 2013, I was awarded one of the inaugural designations of Academic Innovation Fellow from UMBC's President's Office for my work on increasing conceptual connections among courses in our chemical engineering curriculum.

I participated in both the ASEE Summer School for Chemical Engineering Faculty and the National Effective Teaching Institute in 2012. I have been a member of ASEE since 2009, and have prepared at least one paper for each Annual Meeting since 2010, usually in our division. I have served as reviewer for the Annual Meeting for several years. I value my affiliation with the Chemical Engineering Division of ASEE (and the Education Division of AIChE) for its community and mentorship opportunities, and I look forward to the opportunity to serve a division that has done much for me in my career.

If elected, I will work to continue to facilitate the great interactions among our members and our work to improve chemical engineering education. As a participant in the 2012 Summer School, I would be honored to assist in making the 2017 Summer School as successful as possible. I would also work to make as visible as possible the progress being made through collaborations with AIChE's Center for Chemical Process Safety, where I am co-author on some web modules and among a group of academic and industrial professionals currently generating more content. My other educational interests in chemical engineering education include the use of technology to enhance possibilities in communication (such as electronic portfolios) and in game-based learning, and much of this work is sustained thanks to connections made through ASEE and this division in particular. I am thankful for the nomination for Director and am happy to be of service if elected.



June 26 – 29

New Orleans, LA

DIVISION CELEBRATIONS AND EVENTS!

M405: Chemical Engineering Lectureship Awards Presentation

Monday 1:15 – 2:45 PM

The recipient of the Chemical Engineering Division's Lectureship Award, Dr. Mark R. Prausnitz of the Georgia Institute of Technology, will give his presentation "Development of Microneedle Technology for Drug Delivery in the Laboratory, Classroom, Clinic and Board Room."

Special ChE Division Events!

**Buy Your Awards
Dinner Tickets Early
– Save \$10!**

M705: Chemical Engineering Awards Dinner

Monday 6:30 – 9:00 PM at the Grand Isle Restaurant

Ticketed Event: \$50.00 advanced registration and \$60.00 on site.

Come join the ChE Division in a social setting as we honor this year's award recipients.

ChE Division Informal Dutch Treat Dinner

Tuesday 6:30 PM (Location To Be Determined)

Meet us after the last technical session on Tuesday to select a restaurant for a casual, dutch treat dinner with ChE colleagues.



PANELS, WORKSHOPS AND OPEN MEETINGS

M505: Chemical Engineering Open Mic

Monday 3:00 – 4:30 PM (Moderator: Margot Vigeant)

Back by popular demand! Join the division for a lively discussion of varied topics.

M534B: Interdivisional Town Hall on the Proposed Changes to ABET Accreditation Criteria

Monday 3:00 – 4:30 PM

A meeting for ASEE's membership to offer their comments and feedback on the proposed changes to ABET's accreditation criteria.

Speaker: Atsushi Akera

T105: Panel: Bleed All Over My Paper: Making Your Education Research More Rigorous

Tuesday 8:00 – 9:30 AM (Moderator: Laura Ford)

Panel discussion focusing on increasing the quality of education research (co-sponsored by the Educational Research Methods Division).

Speakers: Lisa Bullard, Laura Ford, Milo Koretsky, Margot Vigeant

W205: Chemical Engineering Business Meeting

Wednesday 9:45 – 11:15 AM

An open business and planning meeting for **all** existing and potential members of the Chemical Engineering Division. Feel free to stop by, meet everyone and help plan for the coming year.

ChE Division Technical Sessions



MONDAY, JUNE 27

M305: Virtual and Web Learning in Chemical Engineering

Monday 11:30 AM – 1:00 PM (Moderator: Matthew Cooper)

1. **An Interactive Web Native Textbook for Material and Energy Balances** Matthew Liberatore (University of Toledo)
2. **Cut! Adventures in Student-produced Instructional Videos for Thermodynamics** J. Patrick Abulencia (Manhattan College), David Silverstein (University of Kentucky) and Margot Vigeant (Bucknell University)
3. **An Online Course for Professional Development of Chemical Engineering COOPs and Interns** Richard David (University of Minnesota Duluth)
4. **Data Analytics for Interactive Virtual Laboratories** Jessie Keeler, Thomas Ekstedt, Ying Cao and Milo Koretsky (Oregon State University)
5. **Implementation and Usage of an Online Environment in a Chemical Engineering Curriculum** Kyle Branch and Anthony Butterfield (University of Utah)

TUESDAY, JUNE 28

T305: Chemical Engineering Division Poster Session

Tuesday 11:30 AM – 1:00 PM (Moderator: Christi Patton-Luks)

1. **Capstone Design Projects: An Emphasis on Communication, Critical Thinking, and Analysis** Taryn Bayles (University of Pittsburgh)
2. **Computer-Aided Design for Dimensional Stability of Injection Molded Fiber-Reinforced Polymers** Christopher Hershey and Jay Jayaraman (Michigan State University)
3. **Environmental Awareness in the Material and Energy Balances Course** Connor Bilchak (Columbia University) and Patrick Abulencia (Manhattan College)
4. **Examining Student Outcomes from a REU Program: Year Two Results** Jake Follmer, Sarah Zappe, Esther Gomez and Manish Kumar (The Pennsylvania State University)
5. **Prediction and Reflection Activities in a Chemical Engineering Course: Fundamentals of Heat and Mass Transfer** Heather Chenette and Tony Ribera (Rose-Hulman Institute of Technology)
6. **Self-Efficacy in Senior Design: Effects of Time and Team** Elif Miskioglu (Bucknell University)
7. **Setting Student Safety Knowledge to Practice** Elizabeth Hill (University of Minnesota)
8. **Undergraduate Design Project Ideas in Sustainability: Rethinking Ammonia Synthesis** Mahdi Malmali, Kevin Wagner, Michael Reese, Edward Cussler and Alon McCormick (University of Minnesota)

ChE Division Technical Sessions



TUESDAY, JUNE 28 (cont'd)

T205: Chemical Engineering Division Poster Session (cont'd)

9. **Using Time More Efficiently: Converting an Interview Protocol to a Survey** Paul Golter, Olusola Adesope and Bernard Van Wie (Washington State University)
 10. **ChemE Camp: A Two-Day Workshop to Increase Student Preparedness for Their Sophomore Year in Chemical Engineering** Kevin Whittaker, Amiel Kirtikar and Adam Melvin (Louisiana State University)
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T505: Experiential Learning in Chemical Engineering

Tuesday 3:00 – 4:30 PM (Moderator: Joseph Shaeiwitz)

1. **Implementation of an Ultra-low Cost Heat Exchanger Learning Module to Address Energy Balance Concepts** Negar Beheshti Pour, David Thiessen and Bernard Van Wie (Washington State University)
 2. **Development of a Multi-week Drug Delivery Laboratory for Chemical Engineers** Christopher Anderson (Lafayette College)
 3. **Flipped Laboratories in Chemical & Biomolecular Engineering** Lauren Anderson, James Ferri, and Ashley Cramer (Lafayette College)
 4. **Experiments for Unit Operations in Food Engineering Course** Polly Piergiovanni and John Jarboe (Lafayette College)
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T605: Instructional and Learning Assessment in Chemical Engineering

Tuesday 4:45 – 6:15 PM (Moderator: Anthony Butterfield)

1. **Impacts of Engineering Engagement Activities for First-Year Students** Jacqueline Burgher, Bernard Van Wie, Kirk Reinkens and Stephanie Pitts (Washington State University)
2. **Is Student Performance in CHE Core Courses Affected by Time Elapsed Since Completion of Material and Energy Balance Course Sequence?** Kevin Dahm, Mariano Savelski, Mary Staehle and Joseph Stanzone (Rowan University)
3. **How We Teach Process Control: 2015 Survey Results** David Silverstein (University of Kentucky), Margot Vigeant (Bucknell University) and Mary Staehle (Rowan University)
4. **Mapping Assets of Diverse Groups for Chemical Engineering Design Problem Framing Ability** Vanessa Svihla, Abhaya Datye, Jamie Gomez and Sophia Bowers (University of New Mexico)
5. **Unseen Influences on Student Performance: Instructor Assessment Styles** Elif Miskioglu (Bucknell University)

Stick around after the last session on Tuesday to join in the fun of the informal ChE Division Dutch Treat Dinner!

ChE Division Technical Sessions



WEDNESDAY, JUNE 29

W105: New Pedagogical Approaches in Chemical Engineering

Wednesday 8:00 – 9:30 AM (Moderator: Daniel Burkey)

1. **The Solve – Personalize – Integrate – Think Approach in the Process Control Classroom** Joshua Enszer (University of Delaware)
 2. **Hands-on, Screens-on, and Brains-on Activities for Important Concepts in Heat Transfer** Margot Vigeant, Michael Prince, Katharyn Nottis (Bucknell University), Milo Koretsky and Thomas Ekstedt (Oregon State University)
 3. **Collaboration Between Seniors and Freshmen on Senior Capstone Projects** Anthony Butterfield and Kyle Branch (University of Utah)
 4. **Enhancing Conceptual Testing with Technical Writing** Matthew Cooper (North Carolina State University)
 5. **Plotting McCabe-Thiele Diagrams in Microsoft Excel for Non-Ideal Systems** John Gossage (Lamar University)
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W305: Chemical Engineering Courses in Emergent Areas

Wednesday 11:30 AM – 1:00 PM (Moderator: Kevin Dahm)

1. **Nature-Inspired Chemical Engineering: Course Development in an Emerging Research Area** Daniel Lepek (The Cooper Union) and Marc-Olivier Coppens (University College London)
2. **Teaching Chemical Engineering Courses in a Biomolecular Engineering Program** Faisal Shaikh and Serdar Ozturk (Milwaukee School of Engineering)
3. **A Chemical Engineering Success Course for Transfer Students** Taryn Bayles (University of Pittsburgh)
4. **Natural Nanotechnology: Examples of Creating a Culture of Outreach with Accessible and Adaptable Modules** Virginia Davis (Auburn University)

Check out

<http://www.asee-ched.org>

for additional details!

Community Announcements

2016 AIChE-CCPS-SACHE Faculty Workshop

The 2016 AIChE-CCPS-SACHE Faculty Workshop will be held August 21 - 24, 2016 at the Chevron Energy Technology Company, 100 Chevron Way, Richmond, CA 94802. The purpose of this SACHE faculty workshop is to show faculty how the theory of process safety is put into industrial practice. It is intended to provide chemical engineering faculty opportunities to gain expertise in safety issues, to participate in industry-related safety case studies, and to visit manufacturing sites where these solutions are implemented, so that these can be shared in educational environments. The theme for this workshop is process safety management (PSM) in a large industrial complex. Sponsors for this workshop include Chevron and the AIChE's Center for Chemical Process Safety (CCPS). Attendee housing and meal expenses will be covered during the period of the workshop; however, attendees must cover their transportation costs to and from Richmond, CA. Faculty can register via a registration form that is available at the home page of the SACHE web site: www.sache.org or contacting the workshop faculty organizer: Ronald J. Willey, Northeastern University, Boston, r.willey@neu.edu, or calling 781-492-4956 (cell).

The CEE Graduate Guide is now an app!

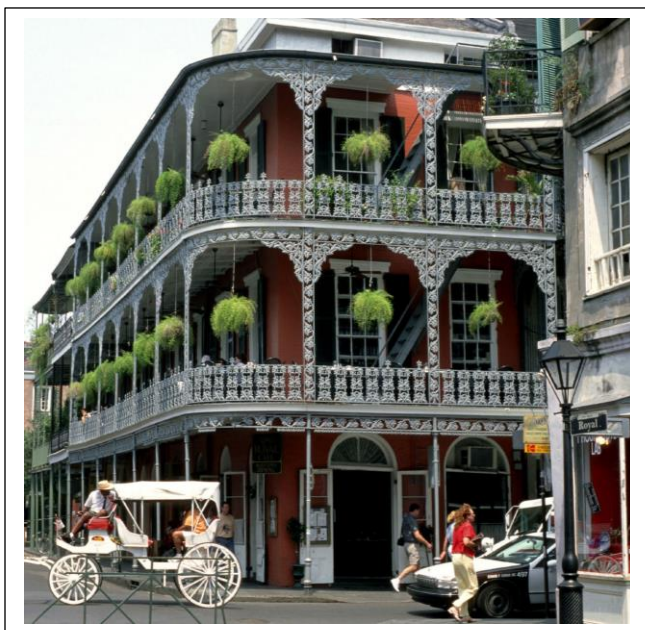
The Chemical Engineering Education (CEE) Annual Graduate Guide is now available as an iPhone/iPad app this year which should make this much more accessible to students who are looking at Grad Schools. The app features interactive ads from over 100 chemical engineering departments and graduate programs in the United States, Canada, the UK and Singapore.

Collection of Articles for New (and not-so-new) Faculty Posted

CEE has posted a "Start-Up Collection for New Faculty" article series which includes helpful discussion on topics of interest for new faculty members. The collection can be accessed through the left-hand column menu at <http://www.che.ufl.edu/cee>

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**Can't wait to
see everyone
in the Big
Easy!**

**Check out
<http://www.asee-ched.org>
for additional details!**

