INTRODUCTION

A Second Special Section on the ASEE/AIChE Chemical Engineering Summer School

Daniel Burkey,[1] Allison Godwin,[2] and Milo D. Koretsky[3]

1. University of Connecticut • Storrs, CT 06269
2. Cornell University • Ithaca, NY 14853
3. Tufts University • Medford, MA 02155

CHEMICAL ENGINEERING SUMMER SCHOOL IN CEE

The response to the Call for Papers from the 2022 Chemical Engineering Summer School was incredible, both from our workshop presenters as well as from our newest Summer School attendees. Over the past several months, the *Chemical Engineering Education* (*CEE*) editorial team has worked with both of these groups to bring these articles, currently numbering 24, to publication. Beginning with the Fall 2023 [1] issue and now continuing with the Winter 2024 issue, we anticipate that another set of Summer School papers will appear in the Spring 2024 issue. The number of papers resulting from the Summer School and the dedication of the authors wishing to broadly disseminate their work is a clear indicator of the positive impact that both *CEE* and the Summer School have on the chemical engineering education community. *CEE* looks forward to continuing to support new and established authors in highlighting their educational scholarship.

PAPERS

This issue contains six papers from the Summer School — four from workshop presenters and two from attendees. On the workshop side, in "Incorporating Hands-On, Inquiry-Based Learning Modules into the Chemical Engineering Classroom," Courtney Pfluger, Jennifer Weiser, and Kristine Horvat detail a number of short projects that can be integrated into various courses across the curriculum. These projects are typically open-ended and can span a class period all the way up to an entire semester, giving instructors lots of latitude in incorporating relevant project-based learning into a class.

In "High Structure Course Design for Chemical Engineering," Justin Shaffer walks readers through the design of a "high-structure" course – one that has a significant amount of intentional instructional scaffolding, including pre-class, in-class, and post-class

Daniel Burkey *is the Castleman Term Professor in Engineering Innovation and the Associate Dean for Undergraduate Education in the School of Engineering at the University of Connecticut. He received his B.S. from Lehigh University, and his M.S. and Ph.D. from the Massachusetts Institute of Technology, all in Chemical Engineering. He also holds an M.A.Ed. in Educational Research Methods, Measurement, and Evaluation from the University of Connecticut.*

Allison Godwin *is an associate professor in the Robert Frederick Smith School of Chemical and Biomolecular Engineering at Cornell University. She received her B.S. in chemical engineering and Ph.D. in engineering and science education from Clemson University. Her research focuses on how engineering identity, alongside other factors, influence engineering students' pathways into and through engineering.*

Milo D. Koretsky *is the McDonnell Family Bridge Professor in the Department of Chemical and Biological Engineering and in the Department of Education at Tufts University. He received his B.S. and M.S. degrees from UC San Diego and his Ph.D. from UC Berkeley all in chemical engineering. He studies learning and engagement in the classroom targeted at the development of conceptual understanding and disciplinary practices.*

activities. In the post-pandemic classroom and with students whose high school learning may have been disrupted, this scaffolded approach can yield benefits to student achievement and confidence. Sandy Pettit and Cliff Henderson detail using Learning Assistants (LAs) in chemical engineering classes in "Development of Learning Assistants to Improve Student Success." Learning Assistants are typically deployed in class and work alongside students facilitating discussions, answering questions, and engaging as part of the instructional team. As opposed to a TA or grader, whose role may be more summative in nature, LAs can be used as real-time, formative assessment tools to help students succeed. Finally, in "Faculty Perceptions of Process Safety Judgement Criteria," Elif Miskioğlu, Cheryl Bodnar, Brittany Butler, Jeffrey Stransky, and Cayla Ritz describe a research study of how the use of a digital process safety game with faculty-shaped perceptions of process safety criteria. They found that faculty perceptions were consistent pre- and post-gameplay and that faculty had developed a new appreciation for the complexity of process safety judgments.

For papers from Summer School attendees, we have "Teaching Food Processing to Chemical Engineering Students with Native American Food," by Glaucia Prado who describes an upper-division elective that challenged students with developing a shelf-stable food product based on a demonstration by Ohlone chefs. Students had to consider multiple criteria and constraints, including Food and Drug Administration regulations, cultural appropriation, and verifying if their proposed solution followed chemical engineering principles. The student evaluations of the assignment indicate it effectively supported selected program outcomes. Christopher Norfolk describes the development of digital tools spurred by the COVID-19 pandemic in a unit operations lab in, "Digital Engineering Learning Tools (DELTa) — Lessons from the Pandemic." A statistical comparison of digital tools and student focus groups provides evidence for the continued use of effective tools.

REFERENCES

1. Koretsky M, Burkey D, and Godwin A (2023) Introduction to a special section on the 2022 ASEE/AICHE Chemical Engineering Summer School. *Chem. Eng. Ed.* 57(4): 166-168. https://doi.org/10.18260/2-1-370.660-134568 ❐