

**BUSINESS ADDRESS:**  
*Chemical Engineering Education*  
675 Wolf Ledges Parkway, Suite 2459  
Akron, OH 44309-2459  
PHONE: 352-682-2622  
email: [cee@che.ufl.edu](mailto:cee@che.ufl.edu)

**EDITOR**

*Donald P. Visco, Jr., University of Akron*

**ASSOCIATE EDITOR**

*Joseph H. Holles, University of Wyoming*

**ASSOCIATE EDITOR &  
LIFELONG LEARNING EDITOR**

*Lisa G. Bullard, North Carolina State University*

**ASSISTANT EDITOR & PROBLEMS EDITOR**

*David Silverstein, University of Kentucky*

**ASSISTANT EDITORS**

*Allison Godwin, Purdue University*

*Monica Lamm, Iowa State University*

*Justin Shaffer, Colorado School of Mines*

*Troy Vogel, University of Notre Dame*

**ACCESS EDITOR**

*Carlos Rinaldi, University of Florida*

**PUBLICATIONS MANAGER**

*Erin Stevic*

**PUBLICATIONS BOARD**

• CHAIR •

*Milo Koretsky*  
*Tufts University*

• VICE CHAIR •

*Adrienne Minerick*  
*Michigan Technological University*

• MEMBERS •

*Jason Bara (Alabama)*

*Taryn Bayles (Pittsburgh)*

*Lorenz Biegler (Carnegie-Mellon)*

*Cheryl Bodnar (Rowan)*

*Daniel Burkey (Connecticut)*

*Jennifer Cole (Northwestern)*

*Matthew Cooper (NC State)*

*John Falconer (Colorado)*

*Laura Ford (Tulsa)*

*Ashlee Ford Versypt (Buffalo)*

*LaRuth McAfee (Delaware)*

*Polly Piergiiovanni (Lafayette)*

*Stewart Slater (Rowan)*

*Uttandaraman Sundararaj (Calgary)*

---

# Chemical Engineering Education

Volume 56                      Number 1                      Winter 2022

---

► **SPECIAL SECTION: THE RESPONSE TO COVID-19**

2 Introduction

*Tracy Gardner, Allison Godwin*

4 Entrepreneurially Minded Learning in the Unit Operations Laboratory Through Community Engagement in a Blended Teaching Environment

*Erick S. Vasquez, Kelly Bohrer, Abraham Noe-Hays, Arthur Davis, Matthew DeWitt, Michael J. Elsass*

15 Can Video Experiments be as Effective as Hands-On Experiments for Conceptual Learning?

*Margot Vigeant, Amy Golightly*

22 Teaching Principles of Biomaterials to Undergraduate Students During the COVID-19 Pandemic with At-Home Inquiry-Based Learning Laboratory Experiments

*Christopher J. Panebianco, James C. Iatridis, Jennifer R. Weiser*

36 Student Outcomes Related to Academic Performance, Motivation, and Mental Health in an Online Materials and Energy Balances Course During the COVID-19 Pandemic

*AraOluwa Adaramola, Allison Godwin, Bryan W. Boudouris*

47 Student Perspectives of Remote Teaching During the COVID-19 Pandemic

*Milo D. Koretsky*

57 Teaching Process and Plant Design in the Year of COVID-19

*Daniel R. Lewin*

68 AIChE Virtual Communities of Practice – Supporting Faculty During the COVID-19 Pandemic

*Matthew W. Liberatore, Daniel Lepek, Laura P. Ford, Tracy Carter, Jennifer Pascal, Monica Lamm, Christi Patton Luks, David L. Silverstein, Ashlee N. Ford Versypt, Stephanie Butler Velegol, Troy Vogel, Neha Raikar, Matt J. Kipper, Christy Wheeler West*

► **DRAWN TO ENGINEERING**

79 Learning and Growing Now

*Lucas Landherr, Milena Kozłowska*

► **TEACHING TIPS**

81 Zoom Helpers: A Peer-Led Resource to Engage Virtual Students

*Adam T. Melvin*

► **FOOD FOR THOUGHT**

82 Pop!

*Margot Vigeant*

► **OTHER**

84 Winter 2022 USPS Statement

88 Ad: 2022 ASEE/AIChE Chemical Engineering Summer School

---

CHEMICAL ENGINEERING EDUCATION [ISSN 0009-2479 (print); ISSN 2165-6428 (online)] is published quarterly by the Chemical Engineering Division, American Society for Engineering Education. Correspondence regarding editorial matter, circulation, and changes of address should be sent to CEE, 675 Wolf Ledges Parkway, Suite 2459, Akron, OH 44309. Copyright © 2022 by the Chemical Engineering Division, American Society for Engineering Education. The statements and opinions expressed in this periodical are those of the writers and not necessarily those of the ChE Division, ASEE, which body assumes no responsibility for them. Valid defective copies replaced if returned within 90 days of publication. Write for information on subscription costs and for back copy costs and availability. POSTMASTER: Send address changes to Chemical Engineering Education, 675 Wolf Ledges Parkway, Suite 2459, Akron, OH 44309. Periodicals Postage Paid at Gainesville, Florida, and additional post offices (USPS 101900). <https://journals.fvc.org/cee/index>