

MATTHEW W. LIBERATORE

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PROFESSIONAL EXPERIENCE

2017- University of Toledo, Professor of Chemical Engineering (tenured)
2015- Lead Author, zyBooks – a Wiley brand
2018 University of Canterbury, Erskine Fellow
2015-2017 University of Toledo, Associate Professor of Chemical Engineering (tenured)
2014-2015 Read Swipe Solve LLC, Founder and Author
2011-2015 Colorado School of Mines, Associate Professor of Chemical Engineering (tenured)
2005-2011 Colorado School of Mines, Assistant Professor of Chemical Engineering
2004-2005 University of Delaware, Postdoctoral Fellow with N.J. Wagner and E.W. Kaler
1999-2003 University of Illinois at Urbana-Champaign, Research Assistant with A.J. McHugh and T.J. Hanratty
1997-1999 Argonne National Laboratory, Engineering Assistant and Engineering Intern

EDUCATION

2003 Ph.D., Chemical Engineering, University of Illinois at Urbana-Champaign
2001 M.S., Chemical Engineering, University of Illinois at Urbana-Champaign
1999 B.S., Chemical Engineering, University of Illinois at Chicago (with honors)

HONORS

Thomas and Donna Edgar Computer Aids for Chemical Engineering (CACHE) 2020
Award for Excellence in Chemical Engineering Education
University of Toledo College of Engineering Excellence in Teaching Award 2019
Alumni Teaching Award from the Colorado School of Mines 2014-2015
Innovation in Chemical Engineering Education Award from the AIChE 2014
Education Division
Rudolf Hering Medal from ASCE for the outstanding paper in the area of 2014
environmental engineering (with J. Silva and J. McCray)
Raymond W. Fahien Award from the ASEE Chemical Engineering Division for 2013
educational scholarship and outstanding teaching effectiveness
Professor of the Year, Chemical and Biological Engineering Department as voted 2011-2012
by graduating seniors
Alfred E. Jenni Faculty Fellowship for institution-wide contributions in teaching 2010-2011
effectiveness and educational scholarship
Mentoring and Travel Grant for New Attendees, ASEE Chemical Engineering 2011
Division

Honors for Research Advisees

Poster Award, 2nd Place (Wesam Hatem), AIChE Virtual North Central Regional Meeting	2021
Paper Award, 3rd Place (tie) presentation (Kayla Chapman), AIChE Virtual North Central Regional Meeting	2021
Paper Award, 3rd Place (tie) presentation (Nicholas Singlar), AIChE Virtual North Central Regional Meeting	2021
Paper Award, 2 nd Place (Uchenna Asogwa), ASEE Virtual North Central Section Conference Meeting	2021
Paper Award, 2 nd Place presentation (Luke Gorbett), AIChE Virtual North Central Regional Meeting	2020
Poster Award, 2 nd Place (Ehsan Akbari Fakhrabadi), Detroit Science Symposium - Chemistry and Materials Engineering for Industry, Detroit, MI	2019
Poster Award, 1 st Place (Ehsan Akbari Fakhrabadi), The Eaton Experience & Poster Session, Southfield, MI	2019
Paper Award, 2 nd Place presentation (Cristin Reno), AIChE North Central Regional Meeting	2019
Poster Award, 2 nd Place Material Science and Engineering (Lisa Young), AIChE Annual Meeting Undergraduate Research Poster Session	2018
Outstanding Student Poster Award (Ye Liu) at the Gordon Research Conference on Fuel Cells	2014
Best Overall Presentation Award (Tara Pandey) at the Conference on Earth and Energy	2014
Best Paper, Undergraduate Research Paper Competition (Marc Donnelly) at the AIChE Rocky Mountain Regional Meeting	2013
Best Poster Award, Chemical & Biological Engineering (Melissa Vandiver) at the Conference on Earth and Energy Research	2013
Poster Award, 2 nd Place Student Competition (Melissa Vandiver), 222 nd Electrochemical Society Meeting	2012
Best Poster Award, Chemical & Biological Engineering (Melissa Vandiver) at the Conference on Earth and Energy Research	2012
Poster Award, 2 nd Place Student Competition (Melissa Vandiver), 220 th Electrochemical Society Meeting	2011
Poster Award, 2 nd Place student competition (Eric B. Webb), Society of Rheology 82 st Annual Meeting	2010
Poster Award, 2 nd Place student competition (Patrick Rensing), Society of Rheology 81 st Annual Meeting	2009
Best Poster Award (Nicholas Wyatt), CSM Graduate Research Fair	2008

TEACHING EXPERIENCE AND EDUCATIONAL DEVELOPMENT

Courses Taught

Graduate Thermodynamics

Fall 2005, Fall 2006, Fall 2007

Heat Transfer

Spring 2007, Spring 2008

Introduction to Engineering Thermodynamics	Spring 2008, Fall 2008, Fall 2009, Fall 2013, Fall 2014, Summer 2018
Unit Operations Laboratory	Summer 2008
Material and Energy Balances	Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022
Transport Phenomena	Fall 2011
Polymer and Complex Fluids Colloquium	Spring 2011, Fall 2011, Spring 2012, Fall 2013, Spring 2014
Scattering Methods (online/in person hybrid)	Fall 2011
Scattering in Soft Materials (online/in person hybrid)	Fall 2013
Graduate Transport Phenomena (Fluid mechanics)	Fall 2015, Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2021
Separation Processes	Fall 2020

RESEARCH AND SCHOLARSHIP

Books

M.D. Koretsky and M.W. Liberatore, *Engineering and Chemical Thermodynamics ZyBook*, 2022. Electronic, interactive textbook. Available at: zybooks.com

M.W. Liberatore, *Spreadsheet Essentials ZyBook*, 2018-2022. Electronic, interactive textbook. Available at: zybooks.com

M.W. Liberatore, *Material and Energy Balances ZyBook*, 2016-2022. Electronic, interactive textbook. Available at: zybooks.com

4 Patents, 1 Patent application

98 Articles (peer reviewed) listed [here](#) or on [Google Scholar](#).

25 Conference Proceedings

65 Invited Presentations

167 Presentations

Other media

M.W. Liberatore with M. Cooper, In the (Fume) Hood Podcast Episode 26 “Matt Liberatore Reverse Engineers Engineering Education”, March 2022.

<https://soundcloud.com/inthefumehood/itfh-26>

M.W. Liberatore and YouTube Project Team, Reverse Engineering Engineering Education YouTube Channel, 2022- .

<https://www.youtube.com/channel/UCXpEhrh9vNnLP4E3jUR5CwA/featured>

Research Supervision

Post-doctoral – 5 former

Doctoral – 2 current, 10 completed

Masters – 10 completed

Undergraduate – 64 students includes 28 women and 10 from underrepresented groups or U.S. military veterans; 17 earned co-author on peer-reviewed journal publication

K-12 Science/Math Teachers – 5 teachers doing summer research

Visiting Researchers – 1 to date

Research Funding

\$4.8M total awards as PI, \$1.3M co-PI share, over \$14M total awards as PI or co-PI. Sources include NSF, DOE, Army, ACS-PRF, and industry. Single PI grant unless noted.

SERVICE ACTIVITIES

Professional

Ad hoc reviewer for dozens of journals

Proposal, panel, or thesis reviewer for ACS-PRF, DOE Office of Science Graduate Fellowships, Kansas Technology Enterprise Corporation, NIST Neutron Scattering, NSF, Research Foundation of the City University of New York, UAE University

Invited participant, NIST Center for Neutron Research Expansion Workshop	2006
Poster session chair, ACS Colloid and Surface Science Symposium	2006
Poster session chair and student poster contest organizer, Society of Rheology Annual Meeting	2006
Exhibitor for Colorado Center for Biorefining and Biofuels, World Congress on Industrial Biotechnology and Bioprocessing	2007
Poster session chair, 29th Symposium on Biotechnology for Fuels and Chemicals	2007
General Papers session chair, ACS Colloid and Surface Science Symposium	2007
Blends, Emulsions and Multiphase Flows session chair, Society of Rheology Annual Meeting	2007
Suspensions and Emulsions presiding chair, The XVth International Congress on Rheology	2008
Personal Care Products discussion leader and invited panelist, Industrial-Academic Workshop: Evolving Multiphase Flows	2008
Industrial Rheology and Complex Systems session chair, Suspensions and Colloids presiding chair, Judge for Postdoctoral Scholar Poster Competition, Society of Rheology Annual Meeting	2009
Colloid and Surface Chemistry in Energy Systems session chair, ACS Colloid and Surface Science Symposium	2010
Self-assembly, Associative and Gel-like Systems session chair, Society of Rheology Annual Meeting	2010
Suspensions, Colloids and Emulsions session chair, Society of Rheology Annual Meeting	2011

Local Arrangements Committee Chair, Society of Rheology Annual Meeting in Denver, CO from October 8 to 12, 2017 Hosted over 400 participants for over 100 individual events and sessions and managed over \$200,000 budget to a surplus	2012-2017
2 nd Vice Chair, AIChE Education Division Assistant program chair for over 20 sessions at Annual Meeting	2014-2015
1 st Vice Chair, Chair, AIChE Education Division Program chair for over 20 sessions at Annual Meeting - Led programming meeting, session and workshop topic selection, and session chair recruiting Initiated Education Division webinar series in January 2017 – 5 webinars hosted in 2017	2016-2017
Chair, AIChE Education Division Lead monthly meetings of the nine-member Division board Charged six committees of volunteers to continue and expand Division Successfully initiated sponsor program for Division's awards (two sponsors in 2018, 2019)	2018-2019
Past Chair, AIChE Education Division Co-lead of Virtual Communities of Practice (5 in total) in response to COVID19 closures (1 publication and 1 conference proceeding above) Chair of both Awards and Nomination Committees Hosted first virtual awards banquet and networking event	2020-2021
Member, AIChE Education Division Awards Committee	2015-2017, 2020-2021
Mentor, AIChE Future Faculty Program Four of six mentees became tenure track faculty to date	2013-
Member, Publications Board for <i>Chemical Engineering Education</i> Chair, Ad hoc committee on web pages for the journal	2014-2016 2015-2016
Education Division poster session chair and Best practices of REU sites session chair, AIChE Annual Meeting	2014, 2015
Poster session judge, Undergraduate student poster session, AIChE Annual Meeting (multiple years)	2014-
Organizing committee and Session Chair, Fluid Dynamics and Transport Phenomena, AIChE Midwest Regional Meeting	2017
Judge, UToledo-Wayne State Chemical Engineering Graduate Symposium	2017-
Invited participant, LinkedIn Learning Summit Chicago	2017
Session moderator, Open Forum in Chemical Engineering Education session at ASEE Annual Meeting	2017
Session moderator, Material and energy balances breakout at ASEE Chemical Engineering Summer School	2017
Poster session judge, ASEE Chemical Engineering Summer School	2017
Co-organizer, ASEE Chemical Engineering Summer School Expo – invited companies to exhibit and present during Industry day	2017
Education Division poster session co-chair, AIChE Annual Meeting	2016, 2017
Judge (Safety), ChemEcar competition, AIChE Regional Meeting, Purdue University	2018

Session Chair, Education Division Award Winners: Service, Innovation, and Research (Invited Talks), AIChE Annual Meeting	2018
Advisory board member, Chemical Engineering program at United States Military Academy, West Point	2019-
Inaugural Member, Diversity and Inclusion Committee of the Society of Rheology – helped organize first student conference called Rheology Research symposium, assisted with, authored, and analyzed surveys, served as mentor to group of five students	2018-2019
Organizing Committee Member, 2022 ASEE/AIChE Chemical Engineering Summer School	2018-
Member of finance subcommittee	
Initiated short and long term fund raising efforts	
Session Moderator, Industrial processes and rheology, Virtual International Congress on Rheology	2020
Session Chair, Educating Chemical Engineers in a Virtual World: Reflections on the Spring 2020 Semester (Invited Talks and Town Hall sessions), AIChE Annual Meeting	2020
AIChE/ASEE Summer School Endowment Fundraising Committee Chair	2020-
Kern Entrepreneurial Engineering Network (KEEN) Engineering Unleashed Ambassador – connecting KEEN and AIChE	2021-
Session Chair, Mind the Gap: Industrial Perspectives on Educating Chemical Engineers and Education Division Awards Plenary, AIChE Annual Meeting	2021

University

Colloquium Organizer	2005-2007
Member, Assistant Professor Search Committee	2007-2008
Poster Judge, Graduate Research Fair/CEER Conference	2007-2015
Member, Graduate Affairs Committee	2007-2010
Faculty Advisor/Chief Advisor, Tau Beta Pi Colorado Alpha Chapter	2007-2015
Awarded grant (\$750) for K12 project 2009-2010	
Department Representative, Undergraduate Council	2008-2012
Member, Department Head Search Committee	2009-2010
Member, Executive Committee in Department of Chemical and Biological Engineering	2010-2012, 2013-2015
Chair, Undergraduate Affairs Committee	2010-2012, 2013-2015
Chair, Teaching Associate Professor Search Committee	2011-2012
Faculty Advisor, AIChE Student Chapter	2012-2015
AIChE Regional Student Paper Competition (2012: 1 st place, 2013: 1 st and 3 rd place, 2014: 2 nd place, 2015: 1 st place)	
Member, University Awards Committee	2012, 2015
Member, Faculty Oversight Committee for Sports and Athletics	2011-2012
Faculty Advisor, Mines Catholic Campus Ministry	2013-2015
Member, Conflict of Interest Committee	2013-2015
Member, Department Awards Committee	2013-2015

Member, Assistant Professor Search Committee	2013-2014
Faculty sponsor, University Innovation Fellow (Corey Brugh)	2013-2015
Chair, Teaching Assistant Professor (Biology) Search Committee	2014
Member, University Innovation Team (Pathways to Innovation Program)	2014-2015
Member, Coors Chair Professor Search Committee	2014-2015
Faculty Advisor, AIChE Student Chapter	2017-
<p>Won Regional ChemEcar competition 2018; Student won 2018 and 2020 Minority Scholarships; Hosted Regional Meeting in 2019 with 400 participants and \$40,000 budget; Student won 1st and 2nd place in regional paper competition 2019; Students won 2019, 2020 and 2021 Donald F. & Mildred Topp Othmer Scholarship; Student won 2020 John J. McKetta Scholarship; Presented best practices of hosting regional student meeting at 2019 annual student conference; Student won 2nd place in regional paper competition 2020, Students won 3rd place in regional paper competition (tie) 2021, student won 2nd place regional poster competition 2021; ChemEcar won 1st place poster and 3rd place performance for regional 2021; ChemEcar won 1st place performance (Scott Fogler award) and safest design (SACHE award).</p>	
Chair, Lecturer Search Committee	2017-2018
Member, College of Engineering Strategic Planning Working Group on Pedagogical Scholarship	2017-2018
Member, Department Personnel Committee	2017-
Seminar organizer	Spring 2018
<p>Hosted 13 speakers related to safety, chemical engineering, and engineering education</p>	
Co-creator, Cosmetic Science Minor	2017-2019
<p>15 credit hours open to all majors where students learn about ingredients, products, and testing.</p>	
Chair, Faculty Executive Committee College of Engineering	2018-2019
<p>Interacted with Dean on faculty-related issues, initiated faculty site on learning management system to improve transparency, altered faculty meeting time and format to improve faculty participation</p>	
Member, Oversight committee for Cosmetic Science Minor	2019-
Undergraduate Director, Department of Chemical Engineering	2019-
Webmaster, Department of Chemical Engineering	2019-
Faculty mentor for Assistant Professor in Mechanical Engineering	2019-
Member, College of Engineering Academic Dishonesty Committee	2020-
Seminar organizer	Spring 2022
<p>Hosted 11 speakers and 1 panel related to chemical engineering and engineering education</p>	