

Prof. Daniel D. Burkey

Education

May 2023	M.A. Educational Psychology, specializing in Research Methods, Measurement, and Evaluation – University of Connecticut
June 2003	Ph.D. Chemical Engineering – Massachusetts Institute of Technology
June 2000	M.S. Chemical Engineering Practice – Massachusetts Institute of Technology
June 1998	B.S. Chemical Engineering – Lehigh University

Appointments

Administrative: University of Connecticut, School of Engineering, Storrs, CT:

8/2013 – Present: Associate Dean for Undergraduate Education and Diversity

10/2010 – 8/2013: Assistant/Associate Department Head, Chemical & Biomolecular Engineering

Academic: University of Connecticut, School of Engineering, Storrs, CT:

8/2022 – Present: Associate Professor (Tenured), Chemical & Biomolecular Engineering

8/2017 – 8/2022: Professor-in-Residence, Chemical & Biomolecular Engineering

8/2012 – 8/2017: Associate Professor-in-Residence, Chemical & Biomolecular Engineering

8/2010 – 8/2012: Assistant Professor-in-Residence, Chemical & Biomolecular Engineering

Previous Appointments:

2008 – 2010: Senior Research and Development Engineer, GVD Corporation, Cambridge, MA

2008 – 2010: Adjunct Professor, Chemical Engineering, Northeastern University, Boston, MA

2003 – 2008: Assistant Professor, Chemical Engineering, Northeastern University, Boston, MA

Significant Administrative Accomplishments

- Led the UConn School of Engineering Undergraduate Programs through a period of unprecedented growth (~70%) in enrollment, from ~2100 students in 2012 to ~3600 in 2022.
- Successfully led UConn School of Engineering through ABET accreditation visits in 2013, 2019.
- Created Undergraduate Teaching, Mentoring, and Leadership Program in UConn SoE, which provides ~100 undergraduate teaching assistants/year since 2014.
- Helped double the number of female engineering grads since 2012, and triple female enrollment in last decade. The 2021 incoming first-year student population is 30% female, a record.
- Redesigned the First-Year Engineering Curriculum (2017) and the developed/oversaw two new majors: Multidisciplinary Engineering (2021) and Robotics (2022).

Significant Awards and Recognition of Scholarly Educational Activities

2022	Castleman Term Professorship in Engineering Innovation
2021	ASEE Chemical Engineering Division Corcoran Award - Awarded to the best paper in <i>Chemical Engineering Education</i> in the previous year.
2020	<i>Innovation in Chemical Engineering Education</i> Award, presented by AIChE Ed. Div.
2020	Inducted to the Connecticut Academy of Science and Engineering (CASE)
2018	University Teaching Fellow, University of Connecticut
2011, 12, 13, 14, 19	AIChE Chemical Engineering Educator of the Year (UConn)
2006, 08, 09	Omega Chi Epsilon Chemical Engineering Faculty of the Year (Northeastern)
2007	College of Engineering Martin W. Essigmann Outstanding Teaching Award

Book Chapters

Burkey, D. D. "Non-thermal Initiation Strategies and Grafting." *CVD Polymers: Fabrication of Organic Surfaces and Devices*, 1st ed. Ed. Karen K. Gleason. New York: Wiley-VCH, 2014. Chapter 4. Print.

Invited Educational Talks

1. "Contents Under Pressure: An 8-bit Styled Digital Game to Teach Chemical Engineering Process Safety" given at the Frontiers in Playful Learning Conference, Neag School of Education, University of Connecticut, Storrs, CT, June 2, 2022
2. "Game On: Using Game-Based Approaches to Teach Topics in Engineering" given at Northeastern University, Dept. of Chemical Engineering, Boston, MA, November 16, 2021
3. "Game On: Using Game-Based Approaches to Teach Topics in Engineering" given at Iowa State University, Dept. of Chemical & Biological Engineering, Ames, IA, March 25, 2021
4. "Game On: Using Game-Based Approaches to Teach Topics in Engineering" given at University of Florida, Dept. of Chemical Engineering, Gainesville, FL, October 12, 2020
5. "Ready Student One: A Playful Approach to Learning" given at the University of Connecticut, Storrs, CT, May 8, 2018, as the Keynote Address to the First Year Programs Conference.
6. "Developing Ethics Skills in the Classroom: Cards Against Engineering Ethics" given April 11, 2018 as part of the 2018 ASEE Webinar Series. Co-presented with M.F. Young
7. "Our Engineer is in Another Castle: Getting Started with Game-Based Learning" given March 13, 2018 as part of the AIChE Education Division 2018 Webinar Series. Co-presented with D. Anastasio and C. Bodnar.
8. "Ready Student One: A Playful Approach to Learning" given at the University of New Hampshire, Durham, NH, March 9, 2018.
9. "Scale Up: Tools and Tips for Teaching a Large Class" given at the 2017 Summer School for Chemical Engineering Faculty, North Carolina State University, Raleigh, NC, July 29 – August 3, 2017. Co-presented with M. Liberatore and R. Rogers.
10. "Taking it to the Next Level – Game Based Learning in ChemE" given at the 2017 Summer

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School for Chemical Engineering Faculty, North Carolina State University, Raleigh, NC, July 29 – August 3, 2017. Co-presented with D. Anastasio, C. Bodnar, & J. Enszer.

Invited Technical Talks

1. “Biomimetic Replication of Complex Mammalian Tissue Scaffolds via Chemical Vapor Deposition” given at the National Institute of Standards and Technology, Gaithersburg, MD, July 9, 2008.
2. “Biomimetic Replication of Complex Mammalian Tissue Scaffolds via Chemical Vapor Deposition” given at the University of Massachusetts at Lowell, Lowell, MA, November 13, 2008.

Peer-Reviewed Publications and Conference Proceedings; * = Student Author

1. “Engineering Process Safety Research Instrument: Assessing Student’s Moral Reasoning in Process Safety Contexts.” J. Stransky*, C. A. Bodnar, L. Bassett*, M. E. Cooper, D. D. Anastasio, **D. D. Burkey**, *Education for Chemical Engineers*, 42, 44-53 (2023). DOI: <https://doi.org/10.1016/j.ece.2022.11.004>
2. “It’s All Relative: Examining Student Ethical Decision Making in a Narrative Game-Based Ethical Intervention,” **D. D. Burkey**, R. T. Cimino, M. F. Young, K. D. Dahm, S. C. Streiner, *2022 IEEE Frontiers in Education Conference (FIE)*, 1-6 (2022). DOI: <https://doi.org/10.1109/FIE56618.2022.9962629>
3. “Let’s Play! Gamifying Engineering Ethics Education Through the Development of Competitive and Collaborative Activities,” M.F. Young, L. Bassett*, **D.D.Burkey**, S. Streiner, J. B. Reed*, *Proceedings of the 128th ASEE Annual Conference and Exposition*, (2021). DOI: <https://peer.asee.org/37452>
4. “Work in Progress: Let’s Talk About Ethics! A Qualitative Analysis of First-Year Engineering Student Group Discussions Around Ethical Scenarios,” L. Bassett*, J. Pascal, R.T. Cimino, K.D. Dahm, **D.D. Burkey**, S. Streiner, *Proceedings of the 128th ASEE Annual Conference and Exposition*, (2021). DOI: <https://peer.asee.org/38177>
5. “Engineering Ethics Through High-Impact Collaborative/Competitive Scenarios (E-ETHICCS),” S. Streiner, **D.D. Burkey**, M.F. Young, R.T. Cimino, J. Pascal, *Proceedings of the 128th ASEE Annual Conference and Exposition*, (2021). DOI: <https://peer.asee.org/37059>
6. “Mapping’ the Landscape of First-Year Engineering Students’ Conceptualizations of Ethical Decision Making,” J.B Reed*, S. Streiner, **D.D. Burkey**, R.T. Cimino, J. Pascal, M.F. Young, *Proceedings of the 128th ASEE Annual Conference and Exposition*, (2021). DOI: <https://strategy.asee.org/36534>
7. “Impact of Immersive Training on Senior Chemical Engineering Students’ Prioritization of Process Safety Decision Criteria,” J. Stransky*, C. Hill*, R. J. McErlean*, J. Willets*, L. Bassett*, D.D. Anastasio, **D.D. Burkey**, M. Cooper, C.A. Bodnar, *Proceedings of the 128th ASEE Annual Conference and Exposition*, (2021). <https://peer.asee.org/37283>
8. “A Retrospective Analysis on the Impacts of an Immersive Digital Environment on Chemical Engineering Student’s Moral Reasoning,” J. Stransky*, L. Bassett*, C. Bodnar, D. Anastasio, **D. Burkey**, and M. Cooper, *Education for Chemical Engineers*, 35, 22-28 (2021). DOI: <https://doi.org/10.1016/j.ece.2020.12.003>

9. “Enhancing iCVD Modification of Electrospun Membranes for Membrane Distillation using a 3D Printed Scaffold,” N. Beauregard*, M. Al-Furaiji, G. Dias*, M. Worthington*, A. Suresh, R. Srivastava, **D. D. Burkey**, & J. R. McCutcheon, *Polymers*, 12, 2074-2085, (2020). DOI: <https://doi.org/10.3390/polym12092074>
10. “Authentic Process Safety Decisions in an Engineering Ethics Context: Expression of Student Moral Development Within Surveys and Immersive Environments,” J. Stransky*, C.A. Bodnar, M. Cooper, D. Anastasio, and **D. D. Burkey**, *Australasian Journal of Engineering Education*, 1-10, (2020). DOI: <https://doi.org/10.1080/22054952.2020.1809881>
11. “Findings and Critique of an Extracurricular Program in Learning Science to Improve Educational Outcomes for Engineering Students,” T. Van Hoof, S. Walsh, J. Missal*, & **D. D. Burkey**, *Journal of STEM Education*, 20(2), 32-38, (2020). DOI: <https://www.jstem.org/jstem/index.php/JSTEM/article/view/2419/2137>
12. “Revealing the Decision-Making Processes of Chemical Engineering Students in Process Safety Contexts,” C. Bodnar, B. Butler*, E. Dringenberg, D. Anastasio, **D. D. Burkey**, & M. Cooper, *Chemical Engineering Education*, 54(1), 22-30, (2020). DOI: <https://journals.flvc.org/cee/article/view/107720> ***Corcoran Award Winner**
13. “Collaborative Research: Designing an Immersive Virtual Environment for Chemical Engineering Process Safety Training,” D.D. Anastasio, L. Bassett*, J. Stransky*, C.A. Bodnar, **D.D. Burkey**, M. Cooper, *Proceedings of the 127th ASEE Annual Conference and Exposition*, (2020). DOI: <https://peer.asee.org/34301>
14. “Exploring Student Decision Making Trends in Process Safety Dilemmas Using the Engineering Process Safety Research Instrument,” J. Stransky*, L. Bassett*, D.D. Anastasio, M. Cooper, **D.D. Burkey**, C.A. Bodnar, *Proceedings of the 127th ASEE Annual Conference and Exposition*, (2020). DOI: <https://peer.asee.org/34645>
15. “Towards Understanding the Moral Reasoning Process of Senior Chemical Engineering Students in Process Safety Contexts,” B. Butler*, C. Bodnar, M. Cooper, **D. D. Burkey**, & D. Anastasio, *Education for Chemical Engineers*, 28, 1-12, (2019). DOI: <https://doi.org/10.1016/j.ece.2019.03.004>
16. “Entrepreneurial Engineering Education – A Research Experience for Undergraduates focused on Entrepreneurship and Technical Innovation,” **D. D. Burkey**, H. Bozorgmanesh, M. Srivastava, & R. Mendes*, *Proceedings of the 126th ASEE Annual Conference and Exposition*, Paper 32754, (2019). DOI: <https://peer.asee.org/32754>
17. “Work in Progress: Content Validation of an Engineering Process Safety Decision-Making Instrument (EPSRI)”, B. L. Butler*, D. D. Anastasio, **D. D. Burkey**, M. Cooper, & C. A. Bodnar, *Proceedings of the 125th ASEE Annual Conference and Exposition*, Paper 21146, (2018). DOI: <https://strategy.asee.org/31279>
18. “Work-in-Progress: A ‘Cards Against Humanity’-style Card Game for Increasing Engineering Students’ Awareness of Ethical Issues in the Profession”, **D. D. Burkey** and M. F. Young, *Proceedings of the 124th ASEE Annual Conference and Exposition*, Paper 18520, (2017). DOI: <https://peer.asee.org/29190>
19. “Initiated Chemical Vapor Deposition Polymers for High Peak-Power Laser Targets”, S. H. Baxamusa, X. Lepró, T. Lee, M. Worthington*, P. Ehrmann, T. Laurence, N. Teslich, A. Suresh and **D. D. Burkey**, *Thin Solid Films*, 635, 37-41 (2017). DOI: <https://doi.org/10.1016/j.tsf.2016.11.055>
20. “Complex, multi-scale small intestinal topography replicated in cellular growth substrates fabricated via chemical vapor deposition of Parylene C”, A. Koppes, M. Kamath, C. Pfluger*, M. Dokmeci, **D. D. Burkey**, L. Wang*, & R. Carrier, *Biofabrication*, 8(3), 035011, (2016). DOI: <https://doi.org/10.1088/1758-5090/8/3/035011>

21. "Engineers at Play: Use of Games as Teaching Tools for Undergraduate Engineering Students", C. A. Bodnar, D. D. Anastasio, J. Enszer, & **D. D. Burkey**, *Journal of Engineering Education*, **105**(1), 147-200, (2016). DOI: <https://doi.org/10.1002/jee.20106> *179 Citations
22. "Photo-oxidation of polymers synthesized by plasma and initiated chemical vapor deposition", S. Baxamusa, A. Suresh, P. Ehrmann, T. Laurence, J. Hanania*, J. Hayes, and **D. D. Burkey**, *Chemical Vapor Deposition*, **21**(10-11-12), 267-274, (2015). DOI: <https://doi.org/10.1002/cvde.201507173>
23. "A First-Year Project-Based Design Course with Management Simulation and Game-Based Learning Elements", D. D. Anastasio*, M. Chwatko*, **D. D. Burkey**, and J. R. McCutcheon, *Proceedings of the 122nd ASEE Annual Conference and Exposition*, Paper 12397, (2015). DOI: <https://peer.asee.org/23381>
24. "Impact of Narrative, Character Creation, and Game Mechanics on Student Engagement in a Game-Based Chemical Engineering Laboratory Course", D. D. Anastasio*, A. Suresh, and **D. D. Burkey**, *Proceedings of the 122nd ASEE Annual Conference and Exposition*, Paper 12396, (2015). DOI: <https://peer.asee.org/24225>
25. "A New Take on Kinetics: Initiated Chemical Vapor Deposition as a Chemical Engineering Capstone Laboratory", D. D. Burkey, **D. Anastasio**, and A. Suresh, *Chemical Engineering Education*, **48**(2), 98-106, (2014). DOI: <https://journals.flvc.org/cee/article/view/83367>
26. "Photoinitiated chemical vapor deposition of cytocompatible poly(2-hydroxyethyl methacrylate) films", B. J. McMahan*, C. A. Pfluger*, B. Sun*, K. S. Ziemer, **D. D. Burkey**, & R. L. Carrier, *Journal of Biomedical Materials Research, Part A*, **102**(7), 2375-2382, (2014). DOI: <https://doi.org/10.1002/jbm.a.34870>
27. "Potential of Hexyl Acrylate Monomer as an Initiator in Photo-initiated CVD", A. Suresh, D. D. Anastasio*, & **D. D. Burkey**, *Chemical Vapor Deposition*, **20**(1-2-3), 5-7, (2014). DOI: <https://doi.org/10.1002/cvde.201304322>
28. "Improving student attitudes toward the capstone laboratory course using gamification", **D. D. Burkey**, D. D. Anastasio*, and A. Suresh, *Proceedings of the 120th ASEE Annual Conference and Exposition*, Paper 5876. (2013). DOI: <https://peer.asee.org/19732>
29. "Precise, Biomimetic Replication of the Multiscale Structure of Intestinal Basement Membrane using Chemical Vapor Deposition", C. A. Pfluger*, B. J. McMahan*, R. L. Carrier, and **D. D. Burkey**, *Tissue Engineering Part A*, **19**(5-6), 649-656. (2012). <https://doi.org/10.1089/ten.tea.2012.0153>
30. "Technology in the Classroom: Transitioning Lab and Design to an All-Digital Workflow", D. Anastasio*, A. Suresh, and **D. D. Burkey**, *Chemical Engineering Education*, **47**(1) (2013). DOI: <https://journals.flvc.org/cee/article/view/118518>
31. "Biocompatibility of Plasma Enhanced Chemical Vapor Deposited Poly(2-hydroxyethyl methacrylate) Films for Biomimetic Replication of the Intestinal Basement Membrane", C. A. Pfluger*, **D. D. Burkey**, L. Wang*, B. Sun*, K. S. Ziemer, and R. L. Carrier, *Biomacromolecules*, **11**(6) 1579-1584 (2010). DOI: <https://doi.org/10.1021/bm100209b>
32. "Cross-linking and Degradation Properties of Plasma Enhanced Chemical Vapor Deposited Poly(2-hydroxymethacrylate)", C. A. Pfluger*, R. L. Carrier, B. Sun*, K. S. Ziemer and **D. D. Burkey**, *Macromolecular Rapid Communications*, **30** 126-132 (2009). DOI: <https://doi.org/10.1002/marc.200800647>
33. "Instant Messaging: Expanding Your Office Hours", **D. D. Burkey** and R. J. Willey, *Chemical Engineering Education*, **39**(3) 183-185 (2005). DOI: <https://journals.flvc.org/cee/article/view/122575>
34. "Temperature-resolved Fourier transform infrared study of condensation reactions and porogen decomposition in hybrid organosilicon-porogen films", **D. D. Burkey** and K. K. Gleason, daniel.burkey@uconn.edu/ddburkey@alum.mit.edu 617-388-1197

Journal of Vacuum Science and Technology A, **22**(1) 61-70 (2004). DOI: <https://doi.org/10.1116/1.1627766>

35. "Organosilicon thin films deposited from cyclic and acyclic precursors using water as an oxidant", **D. D. Burkey** and K. K. Gleason, *Journal of the Electrochemical Society*, **151**(5) F105-F112 (2004). DOI: <https://doi.org/10.1149/1.1688801>
36. "Structure and mechanical properties of thin films deposited from 1,3,5-trimethyl-1,3,5-trivinylcycloctrisiloxane and water", **D. D. Burkey** and K. K. Gleason, *Journal of Applied Physics*, **93**(9) 5143-5150 (2003). DOI: <https://doi.org/10.1063/1.1562744>
37. "Structure and thermal stability of thin-film poly(alpha-methylstyrene) deposited via plasma-enhanced chemical vapor deposition", **D. D. Burkey** and K. K. Gleason, *Chemical Vapor Deposition*, **9**(2) 65-71 (2003). DOI: <https://doi.org/10.1002/cvde.200390004>
38. "Mechanical properties of organosilicon thin films deposited from cyclic and acyclic precursors using water as an oxidant", **D. D. Burkey** and K. K. Gleason, *Materials Research Society Proceedings*, **766**, 273 (2003). DOI: <https://doi.org/10.1557/PROC-766-E6.7>

Significant Educational Technology Developed



"Contents Under Pressure"

<https://epsrigame.uconn.edu/>

Developed collaboratively as part of an NSF IUSE award with partner [Filament Games](#), a noted developer of educational games based in Madison, WI. "Contents Under Pressure" is a virtual chemical process environment that allows students to make process safety related decisions in an authentic environment.

Patents

Ruberti, Jeffrey W., Kowalski, Gregory J., & **Burkey, Daniel D.** 2012. Nanoloom for Controlling Polymer Assembly. U.S. Patent 8,206,773, filed September 27, 2006, and issued June 26, 2012.

Conference and Workshop Presentations

1. "It's All Relative: Examining Student Ethical Decision Making in a Narrative Game-Based Ethical Intervention," **D.D. Burkey**, R.T. Cimino, M.F. Young, K.D. Dahm, & S.C. Streiner, 2022 IEEE Frontiers in Education Conference (FIE), Uppsala, Sweden, October 8-12, 2022.
2. "The World is Changing and We Must Change With It – Lessons Learned in Alternative Grading Approaches in Core Chemical Engineering Courses," **D.D. Burkey**, J.A. Pascal, M. Stuber, & K. Wagstrom, AIChE National Meeting, November 13-18, 2022, Phoenix, AZ.
3. "Teaching Engineering Ethics through Highly Interactive, Team-Based, Playful Games," B. Rundlett, J. Fiegel, & **D.D. Burkey**, Workshop at the 2022 ASEE/AIChE Chemical Engineering Summer School, July 24-29, 2022, Colorado School of Mines, Golden, CO.
4. "Game-Based Learning for Challenging Topics in Chemical Engineering," D. Anastasio, M. daniel.burkey@uconn.edu/ddburkey@alum.mit.edu

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- Cooper, C. Bodnar, & **D.D. Burkey**, Workshop at the 2022 ASEE/AIChE Chemical Engineering Summer School, July 24-29, 2022, Colorado School of Mines, Golden, CO.
5. “Exploring Engineering Students’ Decision Making Priorities in a Digital Plant Environment,” J. Stransky, C.A. Bodnar, **D.D. Burkey**, D.D. Anastasio, M. Cooper, 129th ASEE Annual Conference and Exposition, June 26-29, 2022, Minneapolis, MN.
 6. “Understanding Student Motivation to Engage in the Contents Under Pressure Digital Game,” **J. Stransky***, L. Bassett, C.A. Bodnar, D. Anastasio, D. Burkey, M. Cooper, ICL2021 – 24th International Conference on Interactive Collaborative Learning, Virtual and TU Dresden and HTW Dresden, Germany. September 22nd-24th, 2021.
 7. “Gamifying Engineering Education – A Playful Approach to First-Year Ethics Instruction,” **D.D. Burkey**, S. Streiner, J. Pascal, R.T. Cimino, M.F. Young, L. Bassett, J.F. Reed, Workshop at the 12th Annual FYEE Conference, Virtual, August 9-10, 2021.
 8. “Let’s Play! Gamifying Engineering Ethics Education Through the Development of Competitive and Collaborative Activities,” M.F. Young, **L. Bassett***, D.D. Burkey, S. Streiner, J. B. Reed, 128th ASEE Annual Conference and Exposition, Virtual, July 26-29, 2021.
 9. “Work in Progress: Let’s Talk About Ethics! A Qualitative Analysis of First-Year Engineering Student Group Discussions Around Ethical Scenarios,” **L. Bassett***, J. Pascal, R.T. Cimino, K.D. Dahm, D.D. Burkey, S. Streiner, 128th ASEE Annual Conference and Exposition, Virtual, July 26-29, 2021.
 10. “Engineering Ethics Through High-Impact Collaborative/Competitive Scenarios (E-ETHICCS),” S. Streiner, **D.D. Burkey**, M.F. Young, R.T. Cimino, J. Pascal, 128th ASEE Annual Conference and Exposition, Virtual, July 26-29, 2021.
 11. “Mapping’ the Landscape of First-Year Engineering Students’ Conceptualizations of Ethical Decision Making,” **J.B Reed***, S. Streiner, D.D. Burkey, R.T. Cimino, J. Pascal, M.F. Young, 128th ASEE Annual Conference and Exposition, Virtual, July 26-29, 2021.
 12. “Measuring Student Academic Motivation Toward Process Safety Decision Making within a Virtual Digital Environment,” M. Cooper, **J. Stransky***, L. Bassett*, C.A. Bodnar, D. Anastasio, D.D. Burkey, AIChE Virtual National Meeting, November 16-20, 2020.
 13. “Collaborative Research: Designing an Immersive Virtual Environment for Chemical Engineering Process Safety Training,” D.D. Anastasio, L. Bassett*, J. Stransky*, C.A. Bodnar, **D.D. Burkey**, M. Cooper, 127th ASEE Annual Conference and Exposition, Virtual, June 21-24, 2020.
 14. “Exploring Student Decision Making Trends in Process Safety Dilemmas Using the Engineering Process Safety Research Instrument,” **J. Stransky***, **L. Bassett***, D.D. Anastasio, M. Cooper, D.D. Burkey, C.A. Bodnar, 127th, ASEE Annual Conference and Exposition, Virtual, June 21-24, 2020.
 15. “A Co-Teaching Approach to Unit Operations and Capstone Design – Joint Projects,” **D. D. Burkey** & J. Pascal, AIChE National Conference, Orlando, FL, November 11-15, 2019.
 16. “Lessons from an Untenured Administrator...,” **D. D. Burkey**, AIChE National Conference, Orlando, FL, November 11-15, 2019.
 17. “Tailoring Surface Wettability of 3-D Printed Minimal Surfaces Using iCVD for Implementation as Packing in Gas-Liquid Absorption Columns,” A. Suresh, J. P. Abulencia, R. C. Ryan, **D. D. Burkey**, & A. Pangilinan, AIChE National Conference, Orlando, FL, November 11-15, 2019.

18. "Teaching Aspen Plus via Student-Developed Video Modules," **D. D. Burkey** & J. Pascal, AIChE National Conference, Orlando, FL, November 11-15, 2019.
19. "Chemical Engineering Student Moral Reasoning within Hypothetical Process Safety Contexts," J. Stransky, D. Anastasio, M. Cooper, **D. D. Burkey**, & C. A. Bodnar, AIChE National Conference, Orlando, FL, November 11-15, 2019.
20. "Immersive Digital Experiences for Process Safety Decision Making," C. A. Bodnar, M. Cooper, **D. D. Burkey**, & D. Anastasio, AIChE National Conference, Orlando, FL, November 11-15, 2019.
21. "Revealing the Decision-Making Processes of ChE Students in Process Safety Contexts," B. Butler, E. Dringenberg, D. Anastasio, **D. D. Burkey**, M. Cooper, & C. Bodnar, AIChE 2018 National Conference, Pittsburgh, PA, October 28th- November 2nd, 2018.
22. "Measuring Safety Decision-Making Effectiveness with an Engineering Process Safety Research Instrument (EPSRI)," M. Cooper, B. Butler, D. Anastasio, D. D., Burkey, & C. Bodnar, AIChE 2018 National Conference, Pittsburgh, PA, October 28th- November 2nd, 2018.
23. "Workshop: Taking it to the Next Level: Game-Based Education in Engineering Education", D. A. Anastasio, C. A. Bodnar, **D. D. Burkey**, and S. Streiner, 10th Annual First Year Engineering Education (FYEE) Conference, Rowan University, Glassboro, NJ, July 25-26, 2018.
24. "Optimization of iCVD Modified Electrospun Membranes for Membrane Distillation using a Novel 3-D Printed Scaffold", N. Beauregard, J. R. McCutcheon, and **D. D. Burkey**, European Materials Research Society, Strasbourg, France, June 18-22, 2018.
25. "Work-in-Progress: Content Validation of an Engineering Process Safety Decision-Making Instrument (EPSRI)", B. L. Butler, D. A. Anastasio, **D. D. Burkey**, M. Cooper, and C. A. Bodnar, 125th ASEE Annual Conference and Exposition, Salt Lake City, UT, June 24-28, 2018
26. "Work-in-Progress: A 'Cards Against Humanity'-style Card Game for Increasing Engineering Students' Awareness of Ethical Issues in the Profession", **D. D. Burkey** and M. F. Young, 124th ASEE Annual Conference and Exposition, Columbus, OH, June 25-28, 2017.
27. "Workshop: Gamification for ChE Education" **D.D. Burkey**, C.A. Bodnar, & D.D. Anastasio, AIChE 2016 National Conference, San Francisco, CA, November 13th-18th, 2016.
28. "iCVD Modified Electrospun Membranes for Membrane Distillation" N. Beauregard, J.R. McCutcheon, & **D.D. Burkey**, AIChE 2016 National Conference, San Francisco, CA, November 13th-18th, 2016.
29. "Leveraging Your Best Students: An Undergraduate Leadership, Teaching, and Mentoring Program" **D. D. Burkey**, AIChE 2015 National Conference, Salt Lake City, UT, November 8th-13th, 2015.
30. "Impact of Narrative, Character Creation, and Game Mechanics on Student Engagement in a Game-Based Chemical Engineering Laboratory Course" **D.A. Anastasio**, A. Suresh, and D. D. Burkey, 122nd ASEE Annual Conference and Exposition, Seattle, WA, June 14-17, 2015.
31. "A First-Year Project-Based Design Course with Management Simulation and Game-Based Learning Elements" **D. A. Anastasio**, M. Chwatko, D. D. Burkey, and J.R. McCutcheon, 122nd ASEE Annual Conference and Exposition, Seattle, WA, June 14th-17th, 2015.
32. "A Reactor Design Experiment Using Rapid Prototyping" D. A. Anastasio, A. L. Kadilak, A. Suresh, and **D. D. Burkey**, AIChE 2014 National Conference, Atlanta, GA, November 16th-21st, 2014.
33. "Engineers at Play: Utilization of Games as Teaching Tools for Undergraduate Engineering

- Students” C. A. Bodnar, **D. D. Burkey**, J. A. Enszer, and D. A. Anastasio, AIChE 2014 National Conference, Atlanta, GA, November 16th-21st, 2014.
34. “Improving Student Attitudes Towards the Capstone Laboratory Course Using Gamification” **D. A. Anastasio**, A. Suresh, and D. D. Burkey, 120th ASEE Annual Conference and Exposition, San Antonio, TX, June 23rd-26th, 2013.
 35. “Initiated Chemical Vapor Deposition (iCVD) as a New Take on a Kinetics Lab” **D. D. Burkey**, D. A. Anastasio, and A. Suresh, AIChE 2013 National Conference, San Francisco, CA, November 3rd-8th, 2013.
 36. “Demonstration of Potential Opportunities in Photo-Initiated Chemical Vapor Deposition (piCVD)” A. Suresh, D. A. Anastasio, and **D. D. Burkey**, AIChE 2013 National Conference, San Francisco, CA, November 3rd-8th, 2013.
 37. “Developing Quantifiable Assessments in Advance of an ABET Visit: University of Connecticut” W. E. Mustain and **D. D. Burkey**, AIChE 2013 National Conference, San Francisco, CA, November 3rd-8th, 2013.
 38. “Improving Student Attitudes Toward Capstone Laboratory with Gamification” D. A. Anastasio, **D. D. Burkey**, and A. Suresh, AIChE 2013 National Conference, San Francisco, CA, November 3rd-8th, 2013.
 39. “Reorganizing the Junior and Senior Years at UConn” **D. D. Burkey**, D. Anastasio, and A. Suresh, AIChE 2012 National Conference, Pittsburgh, PA, October 28th-November 2nd, 2012.
 40. “A Game of Labs: Themed Experiments and Gamification in a Chemical Engineering Laboratory Course” **D. D. Burkey**, D. Anastasio, and A. Suresh, ASEE 2012 Chemical Engineering Summer School, University of Maine, Orono, July 21-27th, 2012.
 41. “Plasma Enhanced Chemical Vapor Deposited Poly(2-hydroxymethacrylate) for Fabricating a Degradable, Biocompatible Intestinal Tissue Culture Substrate” **C. A. Pfluger**, R. L. Carrier, B. Sun, K. S. Ziemer and D. D. Burkey, AIChE 2008 National Conference, Philadelphia, PA, November 16-21st, 2008.
 42. “Biomimetic Replication of Intestinal Basement Membrane Using Chemical Vapor Deposition” C. A. Pfluger, R. L. Carrier, and **D. D. Burkey**, SBE 4th International Conference on Bioengineering and Nanotechnology, Dublin, Ireland, July 22-24th, 2008.
 43. “Nano- and Micro- Scale Replication of Intestinal Basement Membrane Using Chemical Vapor Deposition” **C. A. Pfluger**, R. L. Carrier, and D. D. Burkey, AIChE 2007 National Conference, Salt Lake City, UT, November 4-9th, 2007.
 44. “Fabrication and Characterization of Polymeric Surfaces for Bacteria Adhesion in A Whole Cell Biosensor using PECVD” **D. D. Burkey**, A. Sharma, K. S. Ziemer, and A. Sacco, Jr. AIChE 2006 National Conference, San Francisco CA, November 17th, 2006.
 45. “Fabrication and Characterization of Fluorinated Polymeric Surfaces via Chemical Vapor Deposition for Bacterial Adhesion in a Whole-Cell Biosensor” **D. D. Burkey**, A. Sharma, K. S. Ziemer, and A. Sacco, Jr. SBE 2nd International Conference on Bioengineering and Nanotechnology, Santa Barbara CA, September 5-7th, 2006.
 46. “Enhancing the Mechanical Properties of PECVD Organosilicon Thin Films via Condensation Reactions” **D. D. Burkey** and K. K. Gleason, MRS 2003 Spring National Meeting, San Francisco CA, April 24th, 2003.
 47. “Structure and Thermal Stability of Thin-Film Poly(alpha-methylstyrene) Deposited via Plasma-Enhanced Chemical Vapor Deposition” **D. D. Burkey** and K. K. Gleason. AIChE 2002

National Conference, Indianapolis IN, November 8th, 2002.

48. “Structure and Thermal Stability of Thin-Film Poly(alpha-methylstyrene) Deposited via Plasma-Enhanced Chemical Vapor Deposition” **D. D. Burkey** and K. K. Gleason. ACS 2002 Fall National Conference in Boston MA, August 20th, 2002.
49. “Structure and Properties of Pulsed-Plasma CVD Organosilicon Thin Films Deposited from Hexamethylcyclotrisiloxane and Octamethylcyclotetrasiloxane” **D. D. Burkey** and K. K. Gleason. MRS 2001 Spring National Meeting, San Francisco CA, April 18th, 2001.

Externally Funded Proposals: * = Current Funding

1. * “Louis Stokes Renewal STEM Pathways and Research Alliance: Northeast LSAMP 2021-2026”. National Science Foundation, in response to 20-590. **Amount:** \$2,500,000 **Duration:** 2021 – 2026. **Role:** Co-author and UConn School of Engineering Co-Investigator.
2. *NSF-IUSE: “Learning Engineering Ethics Through High-Impact Collaborative and Competitive Scenarios (E-ETHIC²S)”. National Science Foundation, in response to 17-590. **Amount:** \$118,878 **Duration:** March 2020 – March 2024. **Role:** Co-Principal Investigator (UConn PI).
3. * “The UConn & URI Navy STEM Coalition – Addressing Engineering Workforce Needs in the Naval Sector”. Department of Defense. **Amount:** \$3,000,000 **Duration:** September 2021 – September 2024. **Role:** Co-Principal Investigator.
4. NSF-IUSE: “Collaborative Research: Experiential Process Safety Training for Chemical Engineers”. National Science Foundation, in response to 15-585. **Amount:** \$300,000 **Duration:** July 2017 – December 2021. **Role:** Co-Principal Investigator (UConn PI).
5. “Southeast New England Naval STEM Coalition: Advancing the Navy’s STEM Education and Workforce Capabilities”. Office of Naval Research, in response to N00014-17-S-F002. **Amount:** \$650,000 **Duration:** July 2017 – June 2022. **Role:** Co-Principal Investigator
6. “REU Site: Engineering Entrepreneurship Education (E3) – A Multidisciplinary, Entrepreneurial REU”. National Science Foundation, in response to 13-542. **Amount:** \$324,761 **Duration:** September 2016 – December 2019. **Role:** Principal Investigator
7. “Improving Educational Outcomes for Undergraduate Students in Engineering: The UConn Lifelong Learning Project”. The Hubbell Foundation. **Amount:** \$178,384 **Duration:** August 2015 – July 2017. **Role:** Principal Investigator
8. “Draw Soluble Recycle for Forward Osmosis”. Chevron USA. **Amount:** \$25,000 **Duration:** May 2013 – December 2014. **Role:** Co-Principal Investigator
9. “Integrating Experiential Teaching with a Contemporary Chemical Engineering Curriculum”. National Science Foundation, in response to 07-543 CCLI. **Amount:** \$150,000 **Duration:** September 2008 – August 2010. **Role:** Principal Investigator (2007-2008)
10. “Chemical Vapor Deposition Fabrication of Nano- and Micro-scale Biomimetic Surfaces”. National Science Foundation, in response to PD 05-1633. **Amount:** \$282,117 **Duration:** October 1, 2007 – September 30, 2009. **Role:** Principal Investigator 2007/2008, Co-PI 2009-2011
11. “Chemical Vapor Deposition of Low-Dielectric Constant Organosilicon-based Thin Films with Intrinsic Porosity”. Tokyo Electron of America. **Amount:** \$100,650 **Duration:** March 1, 2006 – October 1, 2007. **Role:** Principal Investigator.

Graduate Students

Ph.D.

1. **Arpita Kurdekar** – Ph.D., Integrative Studies, 2024 (Expected) (UConn)
Thesis: “Virtual Reality and Virtual Environments at the Intersection of the Visual Arts, Digital Media, Engineering, and Education”.
Current Position: Ph.D. student in Integrative Studies
2. **Daniel D. Anastasio** – Ph.D., Chemical Engineering, May 2015. (UConn)
Thesis: “Enhancing Student Engagement and Learning Through the Development of Contextually Relevant Chemical Engineering Laboratory Modules”.
Current Position: Associate Professor (Tenured), Chemical Engineering, Rose-Hulman Institute of Technology
3. **Courtney A. Pfluger** – Ph.D., Chemical Engineering, May 2011. (Northeastern University)
Thesis: “Biomimetic Replication of Intestinal Basement Membrane Topography”.
Current Position: Associate Teaching Professor, Chemical Engineering, Northeastern University
*Winner, 2021 Innovation in Chemical Engineering Education Award, AIChE Education Div.

M.S.

1. **Landon Bassett** – M.S., August 2021 (UConn)
Thesis: “Game-Based Citizen Science & Community Engagement, an Educational Air Pollution Game.”
Current Position: STEM Coach, Academic Achievement Center, University of Connecticut
2. **Nicole Beauregard** – M.S., August 2017 (UConn)
Thesis: “Chemical Vapor Deposition Modification of Electrospun Fiber Mats for Membrane Distillation Applications.”
Current Position: Ph.D. Candidate with R. Srivastava, UConn CBE
3. **Brian J. McMahon** – M.S., November 2010. (Northeastern University)
Thesis: “Multi-scale Replication of Small Intestine Basement Membrane via Chemical Vapor Deposition”.
Current Position: Applications Engineer, Framatome
4. **Nari Malkhasyan** – M.S., April 2009. (Northeastern University)
Thesis: “Chemical Vapor Deposition of Low-Dielectric Constant Organosilicon-based Thin Films”.
Current Position: Senior Vendor Manager, Amazon
5. **Sharma, Anesha** – M.S., August 2006. (Northeastern University)
Thesis: “Fabrication & Characterization of Polymeric Surfaces for Bacterial Adhesion in a Whole Cell Biosensor”.

Classes Taught

University of Connecticut:

2022:

Spring: ENGR 3201 – Undergraduate Teaching, Learning, and Mentorship Seminar

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3201 - Undergraduate Teaching, Learning, and Mentorship Seminar

2021:

Spring: ENGR 3201 – Undergraduate Teaching, Learning, and Mentorship Seminar

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3201 - Undergraduate Teaching, Learning, and Mentorship Seminar

2020:

Spring: ENGR 1166 – Foundations of Engineering; ENGR 3201 – Undergraduate Teaching, Learning, and Mentorship Seminar

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3201 - Undergraduate Teaching, Learning, and Mentorship Seminar

2019:

Spring: ENGR 1166 – Foundations of Engineering; ENGR 3201 – Undergraduate Teaching, Learning, and Mentorship Seminar, CHEG 4143W – Chemical Engineering Capstone Design 2; CHEG 4995 – Special Topics in Chemical Engineering

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3201 - Undergraduate Teaching, Learning, and Mentorship Seminar; UNIV 1810 – Engineering House Learning Community Seminar

2018:

Spring: ENGR 1166 – Foundations of Engineering; ENGR 3201 – Undergraduate Teaching, Learning, and Mentorship Seminar, CHEG 4143W – Chemical Engineering Capstone Design 2

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3201 - Undergraduate Teaching, Learning, and Mentorship Seminar; UNIV 1810 – Engineering House Learning Community Seminar

2017:

Spring: ENGR 1166 – Foundations of Engineering; ENGR 3195 – Undergraduate Teaching, Learning, and Mentorship Seminar, CHEG 4143W – Chemical Engineering Capstone Design 2

Fall: CHEG 3112 – Chemical Engineering Thermodynamics 2; ENGR 3195 - Undergraduate Teaching, Learning, and Mentorship Seminar; UNIV 1784 – Freshman Honors Seminar

2016:

Spring: CHEG 4143W – Chemical Engineering Capstone Design 2

Fall: CHEG 2103 – Introduction to Chemical Engineering; ENGR 3195 - Undergraduate Teaching, Learning, and Mentorship Seminar

2015:

Spring: CHEG 4143W – Chemical Engineering Capstone Design 2; ENGR 3195 - Undergraduate Teaching, Learning, and Mentorship Seminar

Fall: CHEG 2103 – Introduction to Chemical Engineering; ENGR 3195 - Undergraduate Teaching, Learning, and Mentorship Seminar

2014:

Spring: CHEG 4143W – Chemical Engineering Capstone Design 2

Fall: CHEG 4140 – Chemical Engineering Capstone Design 1; ENGR 3195 - Undergraduate Teaching, Learning, and Mentorship Seminar

2013:

Spring: CHEG 3128 – Heat/Mass/Kinetics Lab; CHEG 4139 – Chemical Engineering Senior Laboratory; CHEG 4143 – Chemical Engineering Capstone Design 2

Fall: CHEG 4137W – Chemical Engineering Senior Lab; CHEG 4140 – Chemical Engineering Capstone Design 1

2012:

Spring: CHEG 4139W – Chemical Engineering Senior Laboratory; CHEG 4143 – Chemical Engineering Capstone Design 2

Fall: CHEG 3127 – Fluid Mechanics Laboratory; CHEG 4137W – Chemical Engineering Senior Lab

2011:

Spring: CHEG 4139W – Chemical Engineering Senior Laboratory; CHEG 4143 – Chemical Engineering Capstone Design 2

Fall: CHEG 4137W – Chemical Engineering Senior Lab

2010:

Fall: CHEG 4137W – Chemical Engineering Senior Lab

Northeastern University:

- Chemical Engineering Thermodynamics I (CHEU320/CHME2320): S2010, Su2008, Su2007, Su2006, S2004
- Chemical Engineering Thermodynamics II (CHEU322): S2008, F2007, S2007, F2006, S2006, S2005
- Conservation Principles in Chemical Engineering (CHEU308): F2008
- Chemical Engineering Unit Operations (CHEU521): Su2008, Su2007
- Special Topics in Chemical Engineering: Thin Film and Solid-State Characterization Techniques (CHEU699/G260): F2005, F2004

Significant Professional Service – External to the University

- Guest Editor, *Chemical Engineering Education*, Summer School Special Issue
- Programming Co-Lead, 2022 AIChE/ASEE Chemical Engineering Summer School

- This is the premier one-week educational conference/workshop for new chemical engineering faculty, held once every five years at universities around the country.
- Director, AIChE Engineering Education Division, 2017-2020, 2020-2023
 - This is a nationally elected leadership position in the AIChE Education Division.
- Director, Future Faculty Mentoring Program, AIChE Education Division, 2017-Present
 - This is a nationally recognized mentoring program that pairs existing faculty from across the nation with aspiring faculty completing their Ph.D. or PostDoc for a one-year program.
- Publication Board, *Chemical Engineering Education*, 2018 - 2021
- Lehigh University Chemical & Biomolecular Engineering Advisory Board, 2019-Present
- Program Chair, Chemical Engineering Division, American Society of Engineering Education National Meeting, Columbus, Ohio, 2016-2017
- Connecticut Invention Convention, Board of Directors: October 2015 – December 2017
- Middlesex Community College Computing Engineering Technology (CET) and Engineering Science (EGR) Advisory Board: October 2014 – Present

Significant University Service

University of Connecticut

- Post-COVID Future of Learning Committee, Co-Chair, 2021-Present
- University Student Learning Assessment Committee, 2021-Present
- University Senate, 2018-2021, 2021-2024
- Senate Nominating Committee, Chair, 2021-2022
- Senate Faculty Standards Committee, 2019 – Present; Chair, 2022-2023
- Senate Courses and Curriculum Committee: 2017 – 2019
- Life Transformative Education, Best Practices Subcommittee, 2020-present
- General Education Oversight Committee “Delta GE” Working Group, 2017-2018
- President’s Committee on Civil Discourse, 2018
- SoE delegate to AAC&U General Education Assessment Institute, Chicago, 2017
- Connecticut Space Grant Campus Director: September 2015 – Present
- Central Dismissal Committee Member: 2015 – 2017
- Leadership Legacy Program Mentor: 2015, 2017 Cohorts
- Academic Advising Task Force: 2014 – 2015 Academic Year.
- First-Year Programs & Learning Communities Faculty Oversight Board Member: 2015 – Present
- Honors Program Board of Directors: 2013 – 2019
- UConn IDEA Grant Reviewer: 2013 – 2019
- Holster Scholar Reviewer: 2013 – 2019

- Summer Undergraduate Research Fund Review Panelist: 2013 – 2019
- McNair Scholars Selection Panelist: 2020 - Present
- Departmental Marshall at Commencement: 2011 – 2013

Northeastern University

- Special Committee on Quality of Campus Life (Senate Committee), 2006-2007 Academic Year.
- Special Committee of Academic Policy and Enrollment (Senate Committee), 2005-2006 Academic Year.
- Departmental Marshall at Commencement: 2004 – 2008

Significant College Service

University of Connecticut

- Founder and Organizer, G. Michael Howard Engineering Education Lectureship
- ABET Accreditation Steering Committee, Chair: 2017-Present
- School of Engineering ABET Lead: 2013 and 2019 Visits
- Multidisciplinary Engineering Faculty Advisory Board, Chair, 2020 - Present
- DaVinci Program Instructor: 2016, 2017, 2018
- Undergraduate Teaching, Mentoring, and Leadership Program, Director, 2014 – Present
- School of Engineering Courses and Curriculum Committee, Chair: 2013 – Present
- School Marshall at Commencement: 2014 – Present
- College of Technology, UConn representative: 2013 – Present

Significant Departmental Service

University of Connecticut

- Chemical Engineering APiR Search Committee: Spring 2016
- Chemical Engineering PTR Committee: Ad Hoc member for In-Residence faculty evaluations
- Chemical Engineering Undergraduate Committee (Chair): 2010 – 2013; Ex Officio, 2016-Present
- Chemical Engineering Explore Engineering Director: Summer 2011, 2012, 2013
- Chemical Engineering ABET Co-Lead, 2012 – 2013

Northeastern University

- Chemical Engineering Undergraduate Education Committee: Fall 2005 – December 2008
- Chemical Engineering Website Redesign Committee, Chair: Spring 2004
- Chemical Engineering Graduate Committee: Fall 2003 – Fall 2005

- Chemical Engineering Department Chair Search Committee: Spring 2005
- Chemical Engineering New Faculty Search Committee: Spring 2004, 2005, 2006

Other Professional Service

- Session Chair/Moderator: AIChE (2004 – Present) and ASEE (2013 – Present), various sessions
- Judge, Undergraduate Research Poster Session, AIChE National Meetings, 2006, 2007, 2011, 2012.
- Reviewer, *Chemical Engineering Education*
- Reviewer, *Education for Chemical Engineers*

Student Advising

University of Connecticut

- Advisor, National Society of Black Engineers: Fall 2013 – Present
- Advisor, Tau Beta Pi Engineering Honor Society: Fall 2013 – Present
- Co-Advisor for Student AIChE Chapter: Fall 2011 – Fall 2014

Northeastern University

- Co-Advisor for Student AIChE Chapter, Spring 2006 – December 2008
- Co-Advisor for Student Chem-E-Car team, Spring 2006 – December 2008
- Chief advisor for Tau Beta Pi Engineering Honor Society, Fall 2005 – December 2008
- Chemical Engineering Advisor for Tau Beta Pi – 2004/2005 academic year
- Founder/advisor, Chemical Engineering Graduate Student Council, Spring 2003 – Fall 2006

Other Honors & Professional Affiliations

2000	Sigma Xi (Graduate Honor Society)
1998	Bayer Fellowship
1998	Phi Beta Kappa
1998	AIChE Outstanding Senior Award
1998	American Chemical Society Outstanding Senior Award
1997	Robert C. Hicks Prize in Chemical Engineering (Lehigh University)
1997	Pfizer Undergraduate Fellow
1997	Tau Beta Pi

Member – American Institute of Chemical Engineers (AIChE)

Member – American Society for Engineering Education (ASEE)