

CURRICULUM VITAE

TARA S. CARPENTER

EDUCATION

Ph.D. 2005 Duquesne University, Analytical Chemistry

B.A. 1999 Thiel College, Chemistry

Experience in Higher Education (Teaching)

2021 – present	University of Maryland, Baltimore County, Teaching Professor, Department of Chemistry and Biochemistry
2011 – 2021	University of Maryland, Baltimore County, Senior Lecturer, Department of Chemistry and Biochemistry
2004 – 2011	University of Maryland, Baltimore County, Lecturer, Department of Chemistry and Biochemistry

Honors and Certificates Received

2023	Faculty Trailblazer in Accessibility for working in Ensuring Student Accessibility in General Chemistry, UMBC Student Disability Services Award
2021	CNMS Excellence in Teaching Award, UMBC College of Natural and Mathematical Sciences
2020	CNMS Fellow in Online Instruction, UMBC College of Natural and Mathematical Sciences
2017	Active Learning, Inquiry Teaching (ALIT) Certificate, UMBC Faculty Development Center
2015	UMBC Alumni Awards, Outstanding Faculty Member
2008	Student Organizational Advisor of the Year, UMBC Black and Gold Awards
2008	Distinguished Member of National Society of Collegiate Scholars, UMBC

Funded Projects and Collaborations

2024 – current	Implementation Research Study for the Chemistry Courseware Outcomes Research and Evaluation (ChemCORE) Project with Digital Promise
2023 – 2024	Data Analytics Mini-grant, UMBC DoIT, Nudging CHEM 101 Students with <i>myUMBC</i> Personal Posts, Co-Principal Investigator
2022 – 2023	Data Analytics Mini-grant, UMBC DoIT, The Effects of Modeling Effective Learning Strategies in Prerequisite Courses, Principal Investigator
2021 – 2022	Data Analytics Mini-grant, UMBC DoIT, Modeling Effective Learning Strategies in Introductory Chemistry, Principal Investigator
2021	Equity in Digital Learning Researcher-Practitioner Partnership, Contributor
2018	CNMS Dean for Proposal to Lower DFW Rates in CHEM 101 and CHEM 102, Co-Principal Investigator
2012	Curriculum Innovation Grant, Alex. Brown Center for Entrepreneurship, UMBC
2008 – 2011	Teacher Quality in Chemistry, Maryland Higher Education Commission, Co-Lead Instructor

PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHIEVEMENTS**Works Accepted for Publication****Chapters in Books**

Bass, Sarah M., Carpenter, Tara S. *Using AI Tools as an Assistant to the Professor*. In [Editor(s) to be announced] (Ed.), *AI in Chemistry Education* (ACS eBook Series). American Chemical Society. (Invited book chapter, submission due January 2026).

Peer-Reviewed Articles

Carpenter, T.S., Hodges, L.C. (2024). *Student Response to Spaced Practice in Two Large Gateway Chemistry Courses*. *Journal of Chemical Education*, 101, 429-437.

Goolsby-Cole, C., Bass, S. M., Stanwyck, L., Leupen, S., Carpenter, T.S., & Hodges, L.C. (2023). *Issues of Question Equivalence in Online Exam Pools*. *Journal of College Science Teaching*, 52, 24-30.

Carpenter, Tara S., John Fritz, and Thomas Penniston. (2023). *Data Analytics & Adaptive Learning: Research Perspectives*, 1st ed., *Banking on Adaptive Questions to Nudge Student Responsibility for Learning in General Chemistry*. 22. New York: Routledge/Taylor & Francis.
<https://doi.org/10.4324/9781003244271>.

Carpenter, T.S., Beall, L.C., Hodges, L.C. (2020). *Using the LMS for exam wrapper feedback to prompt metacognitive awareness in large courses*. *Journal of Teaching and Learning with Technology*, 9, 79-91.

Hodges, L.C., Beall, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Feeser, E.A., Gierasch, T.M., Nanes, K.M., Perks, H. M., & Wagner, C.R. (2020). *Effect of exam wrappers on student achievement in multiple large STEM courses*. *Journal of College Science Teaching*, 50, 69-79.

Carpenter, T.S., Bass, S., & Hodges, L.C. (2019). *A personalized automated email tool to connect faculty with students in large STEM courses*. *The Chemical Educator*, 24, 183-188.

Ott LE, Carpenter TS, Hamilton DS, LaCourse WR (2018). *Discovery Learning: Development of a Unique Active Learning Environment for Introductory Chemistry*. *Journal of the Scholarship of Teaching and Learning*, 18, 161-180

Hodges, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Feeser, E.A., & Gierasch, T.M. (2017). *Using clickers for deliberate practice in five large science courses*. *Journal of College Science Teaching*, 47(2), 22-28.

Hodges, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Gierasch, T.M., Leupen, S., Nanes, K.M., & Wagner, C.R. (2015). *Using reading quizzes in STEM classes—the what, why, and how*. *Journal of College Science Teaching*, 45(1), 49-55.

Works Submitted or In Preparation

Bass, Sarah M., Carpenter, Tara S., Henderson, J Bryan. *Impact of Semester Timing on Student Outcomes in the First Course of a General Chemistry Sequence*. (In preparation)

Conference/Poster Presentations (Juried/Refereed)

Bass, S. M., Carpenter, T. S., Henderson, J. B. *Impact of Semester Timing on Student Outcomes in the First Course of a General Chemistry Sequence*. Poster presentation, Provost's Teaching and Learning Symposium, UMBC, September 2025.

Tara S. Carpenter, John Fritz, *Two Sides of the Interoperability Coin: Switching Costs for Profs vs. IT*, oral presentation, 1EdTech Learning Impact Conference, June 2025

Tara S. Carpenter, John Fritz, *Enabling Interoperability for Spaced Practice Learning*, invited prese, Empirical Educator Project, 1EdTech Learning Impact Conference, June 2025

Bass, S. M., Goolsby-Cole, C., Stanwyck, L., Leupen, S., Carpenter, T. S., & Hodges, L. C. *When is the Same Not the Same? Issues of Question Equivalence in Online Exam Pools*. Oral presentation, ACS Fall National Meeting, Chicago, IL, August 2022.

Leupen, S., Goolsby-Cole, C., Bass, S. M., Stanwyck, L., Carpenter, T.S., & Hodges, L.C., *When is the Same Not the Same? Issues of Question Equivalence in Online Exam Pools*, presentation contributor, Experimental Biology Conference, April 2022

Sarah M. Bass, Tara S. Carpenter, John L. Fritz, *Promoting Academic Integrity in Online: "Open Note" Exams without Surveillance Software*, poster presentation, EDUCAUSE Meeting, October 2021

Sarah M. Bass, Tara S. Carpenter, John L. Fritz, *Promoting Academic Integrity in Large , "Open Note" Online Exams without Surveillance Software*, oral presenter, ELI Annual Meeting, May 2021.

Sarah M. Bass, Tara S. Carpenter, John L. Fritz, *Promoting Academic Integrity in Large Online Course Exams without Surveillance Software*, oral presenter, 2021 ICAI Mid-Atlantic Regional Convening, February 2021.

Tara S. Carpenter. *Using email to Foster Faculty-Student Connections in a Large Introductory Course*, poster presenter, 2019 Provost's Teaching and Learning Symposium, UMBC, September 2019

Tara S. Carpenter, *Connecting with students in a large introductory course*, 47th Mid-Atlantic Regional Meeting, Baltimore, MD, June 2019

Tara S. Carpenter, *Exam wrappers in a large lecture course*, 47th Mid-Atlantic Regional Meeting, Baltimore, MD, June 2019

Tara S. Carpenter. *Using Study Guides and Learning Objectives to Promote Metacognition in CHEM 101*, poster presenter, 2017 Provost's Teaching and Learning Symposium, UMBC, September 2017

Tara S. Carpenter. *Using learning objectives and study guides to promote metacognition in general chemistry*, 254th ACS National Meeting, Washington, DC, August 2017

Panel Member, *Scholarship of Teaching and Learning*, 2015 Provost's Teaching and Learning Symposium, UMBC, September 2015

Tara S. Carpenter. *Improving the Office Hour Experience for General Chemistry Students*, 250th ACS National Meeting, Boston, MA, August 2015

Tara S. Carpenter, Diana Hamilton, William R. LaCourse, Thomas Smith. *Discovery learning integrated into a large lecture course: which comes first?*, 238th ACS National Meeting, Washington, DC, August 2009

William R. LaCourse, Tara Carpenter, Diana Hamilton, Mark Perks. *Discovery Learning in Large Introductory Chemistry Courses at UMBC*. 234th ACS National Meeting, Boston, MA, August 2007

Conference/Poster Presentations (Non-Juried/Refereed)

Sarah M. Bass, Tara S. Carpenter, Tom S. Penniston, *Lessons Learned Nudging Students with myUMBC Personal Posts*. Oral presentation, UMBC Learning Analytics Community of Practice, November 2024.

Tara S. Carpenter, *Do Students Carry “Lessons Learned” from One Course to the Next?*, invited speaker, UMBC, Learning Analytics Community of Practice Workshop, March 10, 2022

Sarah M. Bass, Tara S. Carpenter, John L. Fritz, *Effective Online Testing Without Surveillance Software*, presenter, Faculty Development Center Workshop, October 2021

Tara S. Carpenter, *Streamline Your Inbox*, oral presenter, 2017 TechFest, UMBC, April 2017

Tara S. Carpenter, *Flipping the Classroom*, TQC Share Our Success Poster Session Guest Speaker, UMBC, March 2015

Tara S. Carpenter, *Virtual Office Hours Lunch and Learn*, UMBC, September 2014

Tara S. Carpenter, *Discovery Learning*, University Retreat, UMBC, August 2009

Tara S. Carpenter, *Digital Alternatives to Writing (or Drawing) on a Chalkboard*, Division of Information Technology workshop, Spring 2008

Presentation Proposals Submitted

Bass, S. M.; Carpenter, T. *Personalized automated e-mail tool to connect faculty with students in large enrollment STEM courses*. Abstract accepted, Biennial Conference on Chemical Education (BCCE), March 2020. (Conference canceled due to COVID-19).

Other Professional Presentations (Invited)

Tara S. Carpenter, *Candid Conversations: Poll Everywhere*, invited panelist, UMBC, DoIT, March 31, 2023.

Tara S. Carpenter, *Online Learning Myths*, invited panelist, UMBC, National Distance Learning Week, November 9, 2022

Tara S. Carpenter, invited panelist, UMBC Division of Undergraduate Academic Affairs Data Day, July 29, 2022

Tara S. Carpenter, *Success Strategies in Large Lecture STEM Courses*, invited speaker, The Ohio State University HHMI Driving Change Program, January 28, 2022

Tara S. Carpenter, *Shifting Super-sized Courses Online*, panelist, DoIT GO Chat Series, UMBC, December 2020

Creative Achievements

Media Activities

UMBC Division of Instructional Technology, (2024). *Lessons Learned Nudging Students with myUMBC Personal Posts: Scaling the right message to right student at right time*. <https://my3.my.umbc.edu/groups/instructional-technology/events/133897>

UMBC Division of Instructional Technology (2023). *Five Faculty Complete “Equity & Digital Learning” Grant*. <https://doit.umbc.edu/post/130823/>

UMBC Division of Instructional Technology (2023). *6 Faculty, 2 Staff Receive 2023-24 LA Mini Grants*. <https://doit.umbc.edu/about/success-stories/post/135851/>

UMBC Division of Instructional Technology (2023). *Chem Prof, DoIT Staff Co-author Chapter in Analytics Book*. <https://doit.umbc.edu/tsc/post/137223/>

Erica Lamberg (2023). *Why doesn't vodka freeze? Here's the cold, hard truth about the spirit*. Fox News, <https://www.foxnews.com/lifestyle/why-doesnt-vodka-freeze-cold-hard-truth-spirit>

Carpenter, T.S. (2023) *Why does your hair curl in the summer? A chemist explains the science behind hair structure*. The Conversation, <https://theconversation.com/why-does-your-hair-curl-in-the-summer-a-chemist-explains-the-science-behind-hair-structure-210767>

UMBC Division of Instructional Technology (2022). *2022-23 Learning Analytics Mini Grant Recipients Announced*. <https://doit.umbc.edu/about/success-stories/post/128655/>

Jeffrey R. Young, (2021). *Automated Proctoring Swept in During Pandemic. It's Likely to Stick Around, Despite Concerns*. EdSurge, 19 November. <https://www.edsurge.com/news/2021-11-19-automated-proctoring-swept-in-during-pandemic-it-s-likely-to-stick-around-despite-concerns>

Nick Anderson, (2020). *College students are weary of 'Zoom U.' But they're also trying to make the best of it*. Washington Post, 26 October. https://www.washingtonpost.com/local/education/umbc-pandemic-remote-learning/2020/10/23/24add5f2-0e24-11eb-b1e8-16b59b92b36d_story.html

UMBC Instructional Technology (2020). *Promoting Academic Integrity in Online Testing*. myUMBC, 29 October. <https://doit.umbc.edu/bsg/post/97023/>

Carpenter, T. S. and Balaa, G. (2018) *A day to celebrate chemistry's favorite unit – the mole. But what's a mole?*. The Conversation, <https://theconversation.com/a-day-to-celebrate-chemistrys-favorite-unit-the-mole-but-whats-a-mole-104838>

SERVICE TO THE DEPARTMENT, UNIVERSITY, COMMUNITY, AND PROFESSION

Service to the Department

2024	Science Olympiad Master of Ceremonies
2023	Co-chair, Science Olympiad Forensics Event
2023	Member, Hiring Committee for Discovery Center Lecturer
2022	Chair, P&T Committee for Dr. Sarah Bass
2020 – 2022	Secondary Advisor, American Chemical Society Student Chapter
2020 – 2022	Member, Online Assessment Committee
2017 – 2020	Member, Department Outreach Committee
2017	Chair, General Chemistry Lecturer Search Committee
2014 – present	Head, Foundation Course Teaching Group Committee
2007 – present	Member, Articulation Committee
2007 – 2018	Advisor for American Chemical Society Student Chapter
2007 – 2008	Member, Chemistry Education Major Development Committee
2005 – 2009	Member, Undergraduate Recruiting Committee
2005, 2006, 2007, 2009	Judge, Undergraduate Research Symposium
2004 – present	Chair, Foundational Chemistry Committee
2004 – present	Member, Assessment and Curriculum Committee
2004 – present	Advisor for Chemistry and Chemistry Education Majors

Service to the University

2025	Member, Search Committee for new Faculty Ombudsperson
2024 – present	Member, Reframing Institutional Transformation to Advance Non-Tenure Track Faculty Team
2020 – present	Ambassador, Department of Instructional Technology
2023	Co-chair, UMBC Bold The Student Experience Subcommittee
2023	Member, Ad hoc Committee for FYE101 Course Development
2022	Reviewer, <i>UMBC Review</i> , 23 rd Volume
2021	Member, Meyerhoff Chemistry Lecture Hall Renovation Planning Committee
2020 – present	Advisor, Catholic Retrievers Student Organization
2020 – 2024	Member, Faculty Development Steering Committee
2020 – 2022	Participant, CNMS Lecture Hall Affinity Group for Online Learning
2019	Participant, ACT® Tessera® Project Investigation, DoIT
2018 – present	Campus Security Authority
2018	Participant, StudyTree App Investigation, DoIT
2017 – 2020	Advisor, Students for Christ Student Organization
2017 – 2020	Faculty Liaison, CNMS Science Education Research Unit
2015 – 2019	Faculty Support, HERI Survey Completion
2015 – 2018	Faculty Mentor, Residential Life
2013	Member, Assistant Director Faculty Development Center Search Committee

2011 – present	Member, College of Natural and Mathematical Sciences Classroom Committee
2008	Member, SCI 100 Lecturer Search Committee
2008	Member, STEM Steering Committee
2005 – present	Department Representative, Blackboard Advisory Board
2005, 2007, 2008, 2018	UMBC Scholar Visit Day Participant
2004 – 2005	Advisor for Incoming Students, Academic Services Student Advising

Service to the Community

2007 – 2018	Facilitator, K-12 Outreach, local school and business activities
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Service to the Profession

2024 – present	Reviewer, Journal of Chemical Education
2000 – present	Member, American Chemical Society, Chemical Education Division
2023	External reviewer, Promotion to Teaching Professor, IUPUI
2015	Consultant, development of new general chemistry textbook (Wiley)
2014	Reviewer, online homework accuracy for ORION homework system (Wiley)
2014	Reviewer, selected chapters of general chemistry textbook (Wiley)
2013	Reviewer, selected chapters of <i>Chemistry: Structures and Properties 1e</i> by Tro (Pearson)
2013	Contributor, end of chapter exercises for general chemistry textbook (Wiley)
2010	Reviewer, instructor materials for <i>Chemistry</i> by Hyslop, Brady and Jespersen (Wiley)
2009	Reviewer, <i>Chemistry: The Molecular Nature of Matter 6e</i> by Brady and Jespersen (Wiley)