

Debra Ann Mlsna, Ph.D.

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Professional Preparation

Davidson College
University of Texas – Austin

Chemistry
Chemistry

B.S. Chemistry, May 1986
Ph.D., May 1992

Appointments***Mississippi State University***

July 1 2020- Present

Associate Professor, Dept. of Chemistry
Research Focus: Student Learning in the Classroom;
Metacognition within Online environments

Jan 2013 - Present

Asst. Professor, Dept. of Chemistry
Director of General Chemistry Programs (2013-June 2019)
Graduate Faculty in Chemical Education
Research Focus: Student Learning in the Classroom

May 2014 - Aug 2018

co-Director and Founder of the Randle R White PreMed Advising
Office

June 2010 – May 2020

Undergraduate Coordinator, Department of Chemistry

June 2009 - Aug 2012

Instructor and Director of Undergraduate Laboratories, Dept. of
Chemistry
Director of Organic Labs; General Chemistry labs
Instructor for Integrated Organic; Integrated General Chemistry

Seacoast Science Inc.

Feb. 2004-May 2009

Senior Scientist, Seacoast Science, Inc., Carlsbad CA
Scientist on development team for Seacoast Science/Vernier
MiniGC
Author of lab manual for MiniGC

Additional Instructor Appointments

Jan. 2003- Dec. 2006

Permanent Lecturer, Miramar College,
San Diego Comm. College District, San Diego, CA
taught all Gen Chem, Organic Chem courses, supervised
laboratories

Jun. 2001- May 2002

Visiting Assistant Professor, University of Maine, Orono ME
taught organic chemistry

Aug. 1992-Jun. 1995

Visiting Assistant Professor, Clemson University, Clemson SC
Assistant Director of Laboratories; taught General Chemistry I and
II (Honors). Research focus: small molecule Crystallographic
Center with Dr. William Pennington.

Selected Publications:

1. Maggie L. Herring, Deb Mlsna, (2020) "Use of Confidence Surveys in General Chemistry I to Encourage Metacognitive Monitoring- Part A", *Journal of Chemical Education*, submitted and under review.
2. Maggie L. Herring, Deb Mlsna, (2020) "Impact of Reading ACT Score on Exam Question Performance in General Chemistry I- Part B", *Journal of Chemical Education*, submitted and under review.
3. Danielle Pitre, Sean Stokes, and Deb Mlsna (2020) "Development of an At-Home Chemistry Lab Experience for Survey of Organic Chemistry Students" *Journal of Chemical Education*, submitted and under review.
4. Crisler II, Glenn B., Viveka Perera, Cintly Guzman Hernandez, Andre Orr, Roger Davis, Jessie Moore, James Smith, Jac Varco, Tim Schauwecker, Ashli Brown, Todd Mlsna, and Deb Mlsna, (2019) "Phosphate in soils: An undergraduate exploration of soil texture, chemistry and amendment", *Journal of Chemical Education*, [10.1021/acs.jchemed.9b00529](https://doi.org/10.1021/acs.jchemed.9b00529), published March 2020.
5. Perera, Y. R., South, T. M., Hughes, A. C., Parkhurst, A. N., Williams, O. C., Davidson, M. B., Wilks, C.A., Mlsna, D.A. & Fitzkee, N. C. (2020). Using NMR Spectroscopy to Measure Protein Binding Capacity on Gold Nanoparticles. *Journal of Chemical Education*, 2020, 97, 3, 820-824.
6. Perera, Viveka, Baku Acharya, Amanda L. Patrick, and Deb Mlsna, (2019) "Hands-On Electrospray Ionization-Mass Spectrometry for Undergraduate Biochemistry Students: Peptide Identification by Ladder Sequencing", *Journal of Chemical Education*, <http://dx.doi.org/10.1021/acs.jchemed.9b00800>, published March, 2020
7. Perera, Viveka L., Sarah K. C. Dygert, Andrew F. Jarosz, Deb Mlsna, (2020), "Eye Tracking Studies to Support Student Metacognition with Chemistry Word Problems", *International Journal of Modern Education Research*, under review.
8. Samarasekara Dulani, Todd Mlsna, Deb Mlsna, (2019) "Peer Review and Response: Environmental Chemistry Essay Assignment Design, Perception, and Performance", *Journal of College Science Teaching*, accepted for publication, Nov/Dec issue, 2020.
9. Perera, Viveka L., Tianlan Wei, and Debra A. Mlsna. "Impact of Peer-Focused Recitation To Enhance Student Success in General Chemistry." *Journal of Chemical Education* 96, no. 8 (2019): 1600-1608.
10. Rajapaksha, S. M., Gerken, K., Archer, T., Lathan, P., Liyanage, A. S., Mlsna, D., & Mlsna, T. E. (2019). "Extraction and Analysis of Xylitol in Sugar-Free Gum Samples by GC-MS with Direct Aqueous Injection". *Journal of Analytical Methods in Chemistry* 2019.

External Funding

Current: 3 Funded NSF programs (\$1,294,308)

1. NSF: REU-INFEWS: Renewal, “Food, Energy and Water Security” 2019. Author and Co-PI Deb Mlsna, \$374,000, **funded 2020-2022.**

Details: Renewal program with expanded cohort of students (10 students per summer); PI Todd Mlsna oversees the research, Co-PI Deb Mlsna oversees the program coordination, education and tracking. Deb Mlsna also coordinates the extra funding support for students.

2. NSF: REU-INFEWS: Food, Energy Water Security. Author and Co-PI Deb Mlsna. \$296,405, **funded 2017-2019.**

Details: Funds summer research (8 students per summer); PI Todd Mlsna oversees the research, Co-PI Deb Mlsna oversees the program coordination, education and tracking. Deb Mlsna also coordinates the extra funding support for students which have led to expanded cohorts (2017: 19 students; 2018: 32 students, 2019: 41 students).

3. NSF- S-STEM: Breaking the Silo- Mathematics as a Common Language in Science”, Co-PI Deb Mlsna; \$623,903, **funded 2014-2020.**

Details: Author and Co-PI Deb Mlsna oversees the academic and mentoring components for the scholarship program (19 students total) and is primary supervisor for all CH scholarship students; team teaches a 1-credit hour support class every Fall semester; coordinates outreach opportunities.

Selected Invited Talks/ Consultant Activities:

1. Invited Speaker- Undergraduate Research Experiences: The Power of Quality Mentorship and Programming, Mentoring and support for the REU-INFEWS- Food, Energy, Water Security Program at Mississippi State University, SouthEastern Regional Meeting of the American Chemical Society, Oct. 20-23, 2019.
2. Invited Plenary speaker, “Frontiers in Chemical Technology:”, June 2020. Columbo, Sri Lanka.
3. Invited Speaker: MSU- Center for Teaching and Learning: Creating Effective Assessments, Apr. 23, 2019.
4. Invited participant: REU Workshop- Mentoring Strategies, March 2019, American Chemical Society, Orlando FL.
5. Invited Speaker: Career Pathways in STEM- Itawamba Community College, Oct. 2018.
6. Invited Speaker: REU-INFEWS: Food, Energy and Water Security at Mississippi State University, American Chemical Society, March 2018, New Orleans.
7. Invited Speaker: SSTEM- Mathematics as a Common Language in Science, American Chemical Society, March 2018, New Orleans.

8. Invited Speaker: Women in STEM, Itawamba Community College, Oct. 2017.
9. MSU- Center for Teaching and Learning, Engaging Students in Large Classrooms, MSU Center for Teaching and Learning, Sept. 15, 2017.
10. “The Science of Learning- MSU’s Chemistry Lab Program encourages Critical Thinking” Vision magazine, College of Arts and Sciences, Fall 2013. Featured article on research approaches and laboratory development-

Awards and Distinctions (8):

1. 2018 Outstanding Faculty Award, Department of Chemistry, Mississippi State University
2. 2016 Shackouls Honors College Award for Outstanding Faculty Member.
3. 2014 Outstanding Faculty Award, Department of Chemistry, Mississippi State University
4. 2012 Mississippi State Pride Faculty Awards.
5. 2012 “Teacher of the Week”- College of Arts and Sciences- Dean’s Advisory Council.
6. 2011 Mississippi State Pride Faculty Awards.
7. 2011 Arts and Sciences Teaching Award, Mississippi State University.
8. 2011 Outstanding Faculty Award, Department of Chemistry, Mississippi State University

Selected Student Presentations:

1. Viveka Perera, Baku Acharya, Amanda Patrick, and Deb Mlsna “Introducing Undergraduate Biochemistry Students to Mass Spectrometry: Development, Implementation, and Evaluation of a New Laboratory Activity”, Mississippi Academy of Sciences, Sept. 2019.
2. Cameron Watson, Lisa Smith, Maggie Leake, Whitnee Nettles, and Deb Mlsna “Supporting Student Engagement in General Chemistry: Effect of Switching Lab Partners and Group Quizzes”, Poster presentation at the Shackouls Honors College Undergraduate Research Symposium, Aug. 2, 2019.
3. Lisa Smith, Whitnee Nettles, and Deb Mlsna. “The Effect of Switching Lab Partners in the General Chemistry I laboratory”, Oral presentation at 9th Annual Lester Andrews Graduate Symposium, May 2019.
4. Maggie Leake, Xue Xu, Charles B. Nettles II, and Deb Mlsna, “Group Quizzes as a Collaborative Learning Tool in Organic Chemistry”, Oral presentation at 9th Annual Lester Andrews Graduate Symposium, May 2019.

5. Suranga M. Rajapaksha, Dulani Samarasekara, John Charles Brown, Leslie Howard, Katherine Gerken, Todd Archer, Patty Lathan, Todd Mlsna, and Deb Mlsna. "Determination of Xylitol in sugar free gum by GC-MS with direct aqueous injection: A laboratory experiment" Oral presentation at 257th American Chemical Society National Meeting, Orlando, FL, April 2019.
6. Suranga M. Rajapaksha, Dulani Samarasekara, John Charles Brown, Leslie Howard, Katherine Gerken, Todd Archer, Patty Lathan, Todd Mlsna, and Deb Mlsna. "Determination of Xylitol in sugar free gum by GC-MS with direct aqueous injection: A laboratory experiment" Poster presentation at 9th Annual Lester Andrews Graduate Symposium, May 2019.
7. Sergi, K, Elder, AD, Eakin, D, Mlsna, D. "Does online media engagement predict academic achievement among college students?" Poster presentation at Association for Psychological Science, Annual meeting, June 2019.
8. Dulani Samarasekara.; Todd Mlsna.; and Deb Mlsna. "Peer-review and response: Environmental chemistry essay, assignment design, perception, and performance" Oral presentation at 70th Southeast Regional Meeting of the American Chemical Society (SERMACS), Augusta, GA. October 2018.
9. Dulani Samarasekara.; and Deb Mlsna. "Evaluation of the Impact of Student Laboratory Partnerships in an Undergraduate General Chemistry Laboratory on Their Study Group Interactions Outside the Classroom" Poster presentation at 8th Annual Lester Andrews Graduate Symposium, May 2018.
10. Wishful Thinking: Student Predictions of Success vs. Actual Performance in First Semester Chemistry, Maggie Leake and Deb Mlsna*, Oral presentation at Southeast Regional Meeting of the American Chemical Society (SERMACS), Charlotte, NC. November 2017

Selected Synergistic Activities:

1. Founder and Co-Director: Randle and Marilyn White PreMed Advising Center: sponsored by the College of Arts and Sciences (2014- Aug. 2018).
2. Developed and launched Chemistry Recitation program to support student learning in General Chemistry I (2015-2019).
3. Undergraduate Coordinator, Department of Chemistry (2010-2020).
4. Developed the new TA2 training for all laboratory graduate students on campus. (Aug. 2012, Aug. 2013)
5. Elected member, College of Arts & Sciences Curriculum Committee, 2019.