

Todd L. Austell

C142 Kenan Laboratories
Department of Chemistry -125 South Road
The University of North Carolina
Chapel Hill, NC 27599-3290

(919)962-9429
tlaustell@unc.edu

EDUCATION

Ph.D. Analytical Chemistry, December 1995. The University of North Carolina at Chapel Hill.
Doctoral Thesis Advisor: Dr. James W. Jorgenson.

Ph.D. Thesis: *Electrospray and Microelectrospray Ionization: Applications with Mass Spectrometry*, 1995.

B.S. Chemistry (Requirements for B.S. Biology). The University of North Carolina at Chapel Hill,
May 1987.

CURRENT RESEARCH

Active learning and the "learner-centered" classroom. Investigating the various methods for enhancing the learning environment in large-scale college chemistry classes. Exploring the use of multimedia, electronic and online resources for instruction and regular assessment in chemistry education.

The impact of math skills on performance in the general chemistry classroom. Assessing the relationship between student performances in first-year introductory chemistry classes and their middle/secondary school math preparation.

3D printing and its uses in the STEM curriculum. Surveying the current growing applications of 3D printers in undergraduate, secondary, and pre-secondary science education.

DOCTORAL THESIS RESEARCH

- A. Microelectrospray (μ ES)
 - 1. Characterization of ionization technique for low flow rate applications.
 - 2. Determination of solution and physical parameters for minimum spray droplet diameters.
- B. Capillary Electrophoresis-Electrospray-Mass Spectrometry (CE/ES/MS)
 - 1. Design and use of a low flow rate CE/ES/MS interface using microelectrospray.
 - 2. Application to various separation techniques for biological samples.
- C. Biological Applications of Electrospray-Mass Spectrometry
 - 1. The elucidation of sugar attachment sites on bovine prothrombin fragment 1.
 - 2. Intermediate structure confirmations in the synthesis of a 129 residue tripod protein.

CURRENT EMPLOYMENT

Research Assistant Professor, July 1998 to Present, UNC-CH Department of Chemistry.

Academic Advisor for the Undergraduate Chemistry Majors, July 2001 to Present, UNC-CH Department of Chemistry.

Coordinator of the Chemistry Resource Center, UNC-CH Department of Chemistry. July 1998 to Present.

Academic Advisor for the Sciences, July 1998 to Present, UNC-CH Academic Advising.
Johnston Scholar Faculty Advisor, July 1998 to Present, UNC-CH Johnston Scholars Program.
Covenant Scholar Advisor, July 2006 to Present, UNC-CH Covenant Scholars Program.
Colonel Robinson Scholar Mentor, July 2016 to Present.

PREVIOUS EMPLOYMENT

Distinguished Visiting Professor, July 2014-June 2015; United States Air Force Academy.
Faculty Director of the General Chem. Laboratory Program, July 1998 to 2008, UNC-CH
Department of Chemistry.
Assistant Professor, July 1997-June 1998, United States Air Force Academy, Department of
Chemistry.
Visiting Lecturer, January 1996-June 1997, UNC-CH Department of Chemistry.
Graduate Teaching Assistant, 1988-1990, UNC-CH Department of Chemistry.
Assistant Scientist, 1987-88, Glaxo Inc., RTP, NC.

TEACHING EXPERIENCE

General, Organic and Analytical Chemistry. First-Year Seminar in Nuclear Chemistry. General
Chemistry Laboratories. UNC-CH Dept. of Chem.
Advanced Instrumental Analysis. The United States Air Force Academy.

HONORS AND AWARDS

James M. Johnston Teaching Excellence Award, Presented in April 2011.
Class of 1996 Excellence In Advising Award, Presented in April 2010. Academic Advising
Program in the College of the Arts and Sciences and the General College of UNC-CH.
National Academic Advising Association Outstanding Advisor Award, National Academic
Advising Association, 2006.
James M. Johnston Teaching Excellence Award, Presented in April 2004.
Students' Undergraduate Teaching Award 2002, Presented in March 2003.
Class of 1996 Excellence In Advising Award, Presented April 2002. Academic Advising Program
in the College of the Arts and Sciences and the General College of UNC-CH, 2002.
College of Arts and Sciences Excellence in Advising Award, UNC-CH, 1999.
Michel-Shaw Award for Undergraduate Advising, UNC-CH, 1997.
Order of the Old Well, UNC-CH, 1993.
Graduate Teaching Award, UNC-CH, 1990.

PUBLICATIONS

Todd Austell, Daniel Branan, "The incredible equilibrium machine – A demonstration of dynamic
chemical equilibrium." *Anuario Latinoamericano de Educación Química*. Año XXIV (No XXVI),
157-161 (2010-2011).

Todd Austell, "Getting The Most Out of College: Studying For Success." In-house publication,
UNC-CH, 2005.

Todd Austell, Lisa Benkowski, Lisa Volaric, "Chemistry 11L Laboratory Manual." Hayden-
McNeil Publishing, Inc. 2002.

Todd Austell, Lisa Benkowski, Carolyn Morse, Lisa Volaric, "Chemistry 21L Laboratory Manual."
Hayden-McNeil Publishing, Inc., 2002.

PUBLICATIONS (continued)

L.A. Benkowski, T.L. Austell, "Chemistry 21 Laboratory (manual)." UNC Students Stores Custom Publishing, 2001.

L.A. Benkowski, T.L. Austell, "Chemistry 11 Laboratory (manual)." UNC Students Stores Custom Publishing, 2000.

K.R. Birdwell, T.L. Austell, R.S. Black, J.W. Jorgenson, R.G. Hiskey, "Evaluation of Proteolytically Released Carbohydrate-Containing Peptides of Bovine Prothrombin Fragment 1 Using Electrospray Ionization Mass Spectrometry and Capillary Electrophoresis." *Journal of Liquid Chromatography and Related Technologies* **20**(7), 987-1004 (1997). REFEREED

D.G. McCafferty, C.A. Slate, B.M. Nakhle, H.D. Graham Jr., T.L. Austell, R.W. Vachet, B.H. Mullis, B.W. Erickson, "Engineering of a 129-Residue Tripod Protein by Chemoselective Ligation of Proline-II Helices," *Tetrahedron* **51**(36), 9859-9872 (1995). REFEREED

PRESENTATIONS * Presenter

T.L. Austell*, "Disciplined for Success at UNC-CH: What does it really take to get into graduate school?" UNC-CH Department of Chemistry Presentation for First Year Students, Fall 2016

T.L. Austell*, The Professor's Perspective, "Disciplined for Success at UNC-CH," Summer 2016 First Year Orientation Program.

T.L. Austell*, The Professor's Perspective, "Disciplined for Success: What does take to success as a transfer student?" Summer 2015 Transfer Orientation Program.

T.L. Austell*, The Professor's Perspective, "Disciplined for Success: What does it really take?," Summer 2014 First Year Orientation Program.

T.L. Austell*, The Professor's Perspective, "Disciplined for Success: What does it really take?," Summer 2013 First Year Orientation Program.

L. Benkowski*, B. Nablo, C. Morse, L. Volaric, T. Austell, "Computer Assisted Data Acquisition for General Chemistry Lab: Conductometric Titration," 17th Biennial Conference on Chemical Education, Western Washington University, Bellingham, WA, July 28-August 1, 2002.

L. Volaric*, L. Benkowski, T. Austell, "Improving Scientific Writing in First-Year Chemistry Students Using Progressive Template Assistance," 17th Biennial Conference on Chemical Education, Western Washington University, Bellingham, WA, July 28-August 1, 2002. (Poster)

T.L. Austell* and J.W. Jorgenson, "A Modified Electrospray Interface for CE/ES: Potential Applications with 2-D Separations," High Performance Capillary Electrophoresis '94, San Diego, CA, February 1, 1994. (Poster)

T.L. Austell and J.W. Jorgenson, Cover Photo for: Research and Development **35**(2), February 1993.

PRESENTATIONS (continued)

T.L. Austell* and J.W. Jorgenson, “Characterization of Microelectrospray,” High Performance Capillary Electrophoresis '93, Orlando, FL, January 26, 1993. (Poster)

J.W. Jorgenson*, D.M. Dohmeier, and T.L. Austell, “Microelectrospray: Characterization of Electrospays at Nanoliter Per Second Flow Rates,” High Performance Capillary Electrophoresis '92, Amsterdam, The Netherlands, February 11, 1993.

J.W. Jorgenson*, D.M. Dohmeier, and T.L. Austell, “Direct Micro-Electrospray Vaporization into Vacuum: A Method for Interfacing Microseparations Techniques (CZE & Micro-LC) and Mass Spectrometry,” Pittsburgh Conference, New Orleans, LA, March 9, 1992.

CURRENT/RECENT TEACHING ASSIGNMENTS 2016-2017

Chemistry 261 (Organic Chemistry I, UNC-CH), 1st Summer Session 2016.

Chemistry 101L (General Chemistry I Laboratory, UNC-CH), 1st Summer Session 2016.

Chemistry 261H (Honors Organic Chemistry I, UNC-CH), Fall 2016.

Chemistry 73 (Nuclear Chemistry First Year Seminar, UNC-CH), Fall 2016.

Chemistry 241 (Analytical Methods, UNC-CH), Spring 2017.

Chemistry 261 (Organic Chemistry I, UNC-CH), Spring 2017.

UNIVERSITY SERVICE, ACTIVITIES AND COMMITTEES

Admitted Students Day Speaker for Department of Chemistry. UNC-CH Office of Undergraduate Admissions. Three to four Department of Chemistry Presentations each spring semester to visiting “admitted” students and their parents. Spring 2017.

Explore Carolina / Carolina 101 Admissions Information Panel Member. UNC-CH Office of Undergraduate Admissions. Serve as faculty representative on 2-3 panels each spring semester. Spring 2001-Present.

Faculty Advisor/Sponsor. UNC-CH Fellowship of Christian Athletes. Assist with meetings and retreat organization as well as management of finances. August 1990 – Present.

Faculty Advisor/Sponsor. UNC-CH Student-Faculty Christian Fellowship. August 2007 – Present.