

Todd L. Austell

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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

Assessing the Relationship Between Student Performances in First-year Introductory Chemistry Classes and Their Middle/Secondary School Math Preparation. Ongoing: 2010-2012.

Exploring the Use of Multimedia, Electronic and Online Resources for Instruction and Assessment in Chemistry Education. Ongoing.

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.

PREVIOUS RESEARCH EXPERIENCE

August 1998 – May 2008. Curriculum development and addition of computerized data collection in the General Chemistry Laboratory Program. The University of North Carolina at Chapel Hill. Worked with lab managers to develop new operational model for general chemistry laboratories incorporating student laptop computers into data collection and workup. Assisted in the development of new experiments to operate under this new model.

August 1988 – August 1989. Student in Ph.D. program in laboratory of Dr. Gary J. Pielak. Department of Chemistry, The University of North Carolina at Chapel Hill.
Research area of interest: the relationship between structure, function, and dynamics of proteins using site-directed mutagenesis and other recombinant techniques.

July 1987 – July 1988. Assistant Scientist. Department of Analytical Chemistry. Glaxo Inc. Research Triangle Park, NC.
Research area of interest: simulated degradation studies for a proprietary compound.

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.
Director of the General Chemistry Tutorial Program, July 1998 to Present, Academic Services, UNC-CH Division of Student Affairs.
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.

PREVIOUS EMPLOYMENT

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.

TEACHING EXPERIENCE

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

PUBLICATIONS

“The incredible equilibrium machine – A demonstration of dynamic chemical equilibrium” Austell, Todd; Branam, Dan. *Anuario Latinoamericano de Educación Química*. **2010-2011**, Año XXIV (No XXVI), 157-161.

Todd Austell, “Getting The Most Out of College: Studying For Success.” In-house publication, UNC-CH, 2010.

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.

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

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.

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 Electrosprays 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.

HONORS AND AWARDS

James M. Johnston Teaching Excellence Award, Presented in April 2011.
Class of 1996 Excellence In Advising Award, Presented April 2010. Academic Advising Program in the College of the Arts and Sciences and the General College of UNC-CH, 2010.
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.

UNIVERSITY SERVICE, ACTIVITIES AND COMMITTEES

Chancellor's Committee for Awards, Scholarships, and Financial Aid. August 2001 to Present, UNC-CH Office of Scholarships and Student Aid.

Barry Goldwater Scholarship Nomination Committee. Fall 1999-Present.

Carolina 101 Admissions Information Panel Member. Spring 2001-Present. UNC-CH Office of Undergraduate Admissions. Served as faculty representative on three panels in Spring of 2011.

Explore Carolina representative for Department of Chemistry. UNC-CH Office of Undergraduate Admissions. Answered questions along with the Director of Undergraduate Studies at five presentations for visiting potential students with chemistry interests from fall 2009 to present.

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

Faculty Sponsor. August 2009 – Present. UNC-CH Student Faculty Christian Fellowship.

MEMBERSHIPS