

## **Annelise H. Gorenssek-Benitez, Ph. D.**

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### **Education and Professional Experience**

**Lecturer**, 07/2021-present

Department of Chemistry, Colorado College

**Visiting Assistant Professor**, 07/2019-06/2021

Department of Chemistry, Davidson College

**Teacher-Scholar Postdoctoral Research Fellow**, 06/2017-06/2019

Department of Chemistry, Wake Forest University

Advisor: Rebecca W. Alexander

**Ph.D. in Chemistry**, 08/2012-05/2017

Department of Chemistry, University of North Carolina at Chapel Hill

Dissertation: Small and large cosolutes modulate enzyme activity and protein folding kinetics

Advisor: Gary J. Pielak

**B.S. in Chemistry with Science Education concentration**, 08/2008-05/2012

*Summa cum laude*

Department of Chemistry, Furman University

Advisor: Karen L. Buchmueller

### **Teaching Experience**

**Instructor, Dyeing to Learn Chemistry, Davidson College.** S20, F20, S21

*Designed and taught course using fibers and dyes to demonstrate chemical principles for a total of 33 undergraduate non-natural-science majors. Facilitated transition to online learning Spring 2020. Course fully remote and taught in a flipped classroom style for Fall 2020.*

**Instructor, Principles of Chemistry, Davidson College.** F19, S21

*Designed classroom activities incorporating active learning activities for a class of 22 students.*

**Instructor, Biochemistry, Wake Forest University.** F18, S19

*Developed lectures and in-class problem solving activities for a class of 19 students.*

**Instructor, Advanced Biochemistry Laboratory, Wake Forest University.** F17, S19

*Designed and graded pre-laboratory assignments, examinations and homework problems; developed a module on the role of lactate dehydrogenase in cellular respiration using the Agilent Seahorse instrument.*

**Instructor, Biochemistry I Laboratory, Meredith College.** F16

*Designed pre-lab lectures and assessments for 6-person laboratory course; designed and proposed a new course layout*

Teaching Assistant, Biochemistry Laboratory, University of North Carolina. F13, S17

Prepared pre-lab lectures, assisted students with experiments, designed and graded assessments

## Mentoring Experience

Co-research mentor, Myers Lab, Davidson College, 2019-2021

Mentees: Jay Min, Meghan Matheny, Nikhil Virani, Bryan Kirk

Postdoctoral mentor, Alexander Laboratory, Wake Forest University, 2017-2019

Mentees: Sam O'Connor, Kia Hutchins, Francis Sto. Domingo

Graduate mentor, Pielak Laboratory, UNC-CH, 2013-2017

Mentees: Gerardo Perez Goncalves (*UNC Summer Undergraduate Research Fellow (SURF), 2016; SERMACS Best Poster Award, 2016; Caltech Summer Research (WAVE) Fellow, 2017*); Luis Acosta (*UNC Summer Undergraduate Research Fellow (SURF), 2015*); Beth Williard

## Publications

King, A.G. and Gorensek-Benitez, A. H. "Teaching undergraduate chemistry through fibers and dyes." In *Chemistry in Context: Teaching chemistry concepts in the context art and archeology*; Braun, K. and Labby, K., Eds.; ACS Symposium Series. Invited chapter. *In press*.

Anstey, M. R., Carroll, F. A., Gorensek-Benitez, A. H., Hauser, C. D., Key, H. M., Myers, J. L., Stevens, E P., Striplin, D., Holck, \*H. W., \*Montero-Lopez, L. M. and Snyder, N. L. "#DavidsonTrue: Transitioning to Remote Teaching while Maintaining our Values as a Liberal Arts College During the COVID-19 Pandemic at Davidson College." *Journal of Chemical Education*. 97:2800-2805.

Acosta, L.C.,\* Perez Goncalves, G. M.,\* Pielak, G. J. and Gorensek-Benitez, A. H. "Large cosolutes, small cosolutes and dihydrofolate reductase activity." *Protein Science*. 26:2417-2425.

Gorensek-Benitez, A. H., Smith, A. E., Stadmiller, S. S., Perez Goncalves,\* G. M. and Pielak, G. J. "Cosolutes, crowding and protein folding kinetics." *Journal of Physical Chemistry B*. 121: 6527-6537

Stadmiller, S. S., Gorensek-Benitez, A.H., Guseman, A. J. and Pielak, G. J. "Osmotic-shock induced protein destabilization in living cells and its reversal by glycine betaine." *Journal of Molecular Biology*. 429:1155-1161.

Smith, A.E., Zhou, L.Z.,\* Gorensek, A.H., Senske, M. and Pielak, G.J. 2016. "In-cell thermodynamics and a new role for protein surfaces." *Proceedings of the National Academy of Sciences USA*. 113: 1725-1730

Gorensek, A.H. 2011.\* "The Slovene-American dichotomy: The workers' struggle for agency." *Furman Humanities Review*, 21.

\*denotes undergraduate researcher

## Honors and Awards

**Davidson Arts and Creative Engagement (DACE) Creative Initiative Grant (\$325), 2020**

**DACE Covid-19 Creative Initiative Grant (\$450), 2020**

**Protein Society Young Investigator Travel Award, 2016**

**UNC-BEST (NIH) ImpACT Teaching Fellowship, 2016**

**Future Faculty Fellow, University of North Carolina Center for Faculty Excellence, 2014**

**National Science Foundation Graduate Research Fellowship, 2012**

**John Sampey Award for Excellence in Chemistry, Furman University, 2012**

**Phi Beta Kappa, Furman University, 2012**

**Priscilla Carney Jones Scholarship, American Chemical Society, 2011**

## Research Experience

**Visiting Assistant Professor, 07/2019-06/2021**

Department of Chemistry, Davidson College,

*Explored the effects of synthetic polymers and osmolytes on alpha synuclein fibrillation.*

**Teacher-Scholar Postdoctoral Fellow, 06/2017-06/2019**

Department of Chemistry, Wake Forest University

*Investigated the pre-steady state kinetics of E. coli and S. cerevisiae Methionine tRNA synthetases.*

**Graduate Research Fellow, 07/2012-05/2017**

Department of Chemistry

*Determined the effects of macromolecular crowding on protein folding kinetics and enzyme activity.*

**Intern, Center for Hydrogen Technology, 07/2012-05/2017**

Savannah River National Laboratory

*Developed a silver-selective electrode assay for quantifying radioactive iodide in groundwater.*

**Undergraduate Research Fellow, 05/2011-07/2011**

Institute Pasteur de Lille

*Synthesized and attached a Listeria monocytogenes protein InlB-selective linker to an atomic force microscopy cantilever to assist the study of Listeria monocytogenes pathogenesis of mammalian cells.*

**Undergraduate Researcher, Furman University Department of Education, 01/2011-05/2011**

Furman University Department of Education

*Studied students' misconceptions about the role of creativity in scientific courses.*

**Howard Hughes Medical Institute Undergraduate Research Fellow, 05/2009-05/2011**

Furman University

*Assessed the potency of small molecule minor groove-binding inhibitors of the HMGA A/T Hook.*

## Presentations

Gorensek-Benitez, A. H. "#Davidsontrue: Building a classroom community during COVID-19." Fall Meeting of the American Chemical Society, Atlanta, GA, August 22-26<sup>th</sup> 2021.

Gorensek-Benitez, A.H. "Fostering Effective Active Learning Online." Davidson College Summer Digital Learning Institute. July 16, 2020.

Gorensek-Benitez, A.H. "Active Learning for Inclusivity." Fostering Inclusivity and Respect Together (FIRST) STEM Education Hour. June 16, 2020

Gorensek-Benitez, A.H. "Exploring chemistry through fibers and dyes." 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Because of the global COVID-19 pandemic, the 2020 Biennial Conference on Chemical Education was terminated on April 2, 2020, by the Executive Committee of the Division of Chemical Education, American Chemical Society; and, therefore, this presentation could not be given as intended.

Gorensek-Benitez, A. H., King, S.B., Bharadwaj, M. and King, A. G. "Integration of the Agilent Seahorse into the Advanced Undergraduate Teaching Laboratory." 25<sup>th</sup> Biennial Conference on Chemical Education (BCCE), Notre Dame, IN, July 29<sup>th</sup>-August 2<sup>nd</sup> 2018.

Gorensek, A. H. "Effects of Sucrose on Protein Folding Kinetics." Wake Forest University, Winston-Salem, NC. November 4, 2016.

Gorensek, A.H., Smith, A. E., Stadmiller, S. S., Perez-Goncalves, G. M. and Pielak, G.J. "Effects of crowding on the activation enthalpy and entropy of protein folding." The 68<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society (SERMACS), Columbia, South Carolina, October 23-26, 2016.

Gorensek, A. H. "Cosolutes Modulate Protein Folding Kinetics." Furman University, Greenville, SC. September 30, 2016.

Gorensek, A.H., Smith, A. E., Perez-Goncalves, G. M. and Pielak, G.J. "Macromolecular and protein folding kinetics." The 30<sup>th</sup> Annual Symposium of the Protein Society, Baltimore, Maryland, July 16-19, 2016.

Gorensek, A. H. "Macromolecular Crowding Remodels Protein Folding Landscapes." Westminster College, New Wilmington, PA. May 10, 2016.

Gorensek, A.H., Acosta, L.C. and Pielak, G.J. "Macromolecular crowding modulates enzyme catalysis." The 29<sup>th</sup> Annual Symposium of the Protein Society, Barcelona, Spain, July 22-25, 2015.

## Pedagogical Training

Summer Digital Learning Institute *Davidson College*, 2020  
Promoting Active Learning Online Course *The Association of College and University Educators*, 2020  
Countering Stereotype Threat Workshop *Davidson FIRST Initiative*, 2019  
Mapping the Undergraduate Curriculum in Biochemistry Workshop, *ACS Exams Inst. BCCE* 2018  
Introduction to POGIL Workshop, *BCCE* 2018  
Summer Reading Series on "Small Teaching," *Wake Forest Teaching and Learning Center*, 2017  
Effective College Teaching Workshop, *Richard Felder and Rebecca Brent, UNC-CH*, 2016  
Advanced Learning through Evidence-Based STEM Teaching, *CIRTL Network*, 2016  
Energizing the Classroom: Integrating Active Learning Seminar, *UNC-CH*, 2015  
Backwards Course Design, Starting From the End Seminar, *UNC-CH*, 2015  
Summer Teaching Series, *Training Initiatives in Biological and Biomedical Sciences, UNC-CH*, 2015  
An Introduction to Evidence-Based STEM Undergraduate Education, *CIRTL Network*, 2014  
Future Faculty Fellows Program, *Center for Teaching Excellence, UNC-CH*, 2014

## Outreach

Co-Coordinator, *Crafting for Connection during COVID-19 community quilt project*, 2020  
Volunteer, *Evolving STEM Winston-Salem*, 2018  
Volunteer, *Wake Forest Summer High School Immersion Program*, 2017-2018  
"Expert" Scientist, *North Carolina Science Festival Invite-a-Scientist*, 2014-2016  
Floor Demo Volunteer, *Discovery Place, Charlotte, NC*, 2015  
Exhibitor, *NC Science Festival*, 2013-2014  
Visiting Scientist, *NC DNA Day*, 2013

## Service

Manuscript referee: *European Journal of Biophysics, Journal of Physical Chemistry B*

Faculty Sponsor, *WildCrafts undergraduate crafting society, Davidson College*, 2020  
Founder and Coordinator, *Davidson College Crafty 'Cats faculty fiber arts group*, 2019-2020  
Postdoctoral Representative, *Biomolecules in Vivo Subgroup of the Biophysical Society*, 2019  
Vice President of Programs, *Triad Modern Quilt Guild*, 2018-2020  
Alumni mentor, *Furman Connect Pilot Program*, 2018-present  
Education Committee, *The Protein Society*, 2016-2017  
Learning Community Facilitator, *Advanced Learning through Evidence-Based STEM Teaching*, 2016  
Scientific Content Consultant, *Periodic Table Project, Kenan Science Library, UNC-CH*, 2015-2017  
Program Chair, *Durham-Orange Quilters, Chapel Hill, NC*, 2014-2016  
Board member, *NC DNA Day Science Festival. UNC-CH*, 2014