

CURRICULUM VITAE

KATE HAYDEN

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HELLO,

As a recent Ph.D, graduate and as a current Visiting Assistant Professor, I am excited to continue my career as an Associate Professor in Chemistry. Over the course of my industry experience and graduate studies in biophysical chemistry I have gained broad expertise in analytical, biological, environmental and organic chemistry. I am a passionate and motivating instructor who works well in an active learning environment. Currently, I am looking for a position in a primary undergraduate institution that values a quality education for their students, embraces the undergraduate research experience and enables their professors to use progressive teaching approaches.

EDUCATION

Ph.D. in Chemistry University of Alabama at Birmingham. Birmingham, Al. <i>Successfully defended Aug 2014</i> Understanding non-helical nuclease resistant DNAs and their role in TLR9 mediate cellular invasion.	DEC. 2014
M.S. in Chemistry University of Alabama at Birmingham. Birmingham, Al. Thermodynamic and structural characterization of non-helical DNAs	AUG. 2013
B.S. in Chemistry and Biology University of Montevallo. Montevallo, Al. Synthesis, purification and characterization of a novel poryphrin	MAY 2006

AWARDS

Graduate Fellowship University of Alabama at Birmingham	2014
Innovations in Chemistry Instruction University of Alabama at Birmingham	2013
1st Place for presentation Graduate Student Research Days, University of Alabama at Birmingham	2012
Best Oral Presentation Lester S. Andrews Graduate Symposium, Mississippi State University	2012
Freshman Leadership Scholarship University of Montevallo	2001-2005

ACADEMIC

Visiting Assistant Professor Department of Chemistry, Birmingham-Southern College Developed curriculum, facilitated learning, and administered grades for Biochemistry (CH308), and Organic Chemistry Lab (CH211L).	2014- CURRENT
CIRTL Scholar Certification Center for the Integration of Research, Teaching, and Learning; UAB This certification was received after completing and presenting a teaching as research project.	2014
CIRTL Practitioner Certification Center for the Integration of Research, Teaching, and Learning; UAB This certification was received after completing necessary courses in teaching at the college level.	2014
CIRTL Fellow Certification Center for the Integration of Research, Teaching, and Learning; UAB This certification was received after completing necessary courses in teaching at the college level.	2013
Teaching Assistant Department of Chemistry, UAB Instructed, managed, developed new experiments, and administered grades for various laboratory courses in Chemistry including General Chemistry I Honors (CH114), General Chemistry II (CH115), Organic Chemistry (CH236), and Physical Chemistry I (CH325L)	2009-2013
Course Development and Instruction Department of Chemistry, UAB Developed, instructed and administered grades for CH201, "Current Research Methods in Chemistry". Currently preparing a manuscript describing this award winning "hands on, active learning" course for submission to a peer reviewed journal in chemistry education.	2012-2014
Mentoring Department of Chemistry, UAB I have mentored various students ranging from high school to graduate in their various research projects, a number of whom have won awards based on their projects and writing.	2010-2014

SERVICE

Throughout my years at UAB, I have mentored numerous graduate, undergraduate and high school students with various projects, a number of whom have won awards based on their research. I have volunteered for numerous on campus activities from judging undergraduate research symposiums, guest lecturing for our local undergraduate SACS meetings, organizing events for chemistry graduate students and participating in UAB's Graduate Research Days. I have attended and presented at least one professional conference annually since 2010, including SERMACS, NACS and GIBBS. In order to improve my teaching, leadership and mentoring skills, While at Birmingham-Southern College, I have been working with faculty, administrators and local company representatives to implement a summer internship program for STEM majors. This program, co-mentored between me and company scientists, will guide students through an authentic research project while gaining hands-on industry experience. In addition to the STEM summer internship program, I am currently in discussions with representatives from Birmingham Business Alliance on developing a statewide STEM outreach program that will bring the scientific experience to students in rural areas.

INDUSTRY

Consultant Blondin Bioscience, LLC Birmingham, Alabama

Oversee and implement the development of new research and products, grant writing, lab management, public relations.

2013-
CURRENT

Quality Control Analyst/NMR Specialist Avanti Polar Lipids, Inc. Alabaster, Alabama

Performed GMP analytical method development and validation for new and current lipid products on HPLC, GC, NMR, IR, and UV-Vis. Performed quality control assays on HPLC, GC, NMR, TLC, and UV-Vis for the release of GMP products. Managed and maintained NMR and Blood Lab facilities.

2006-2009

SKILLS

Instrumental

HPLC, GC, FPLC, NMR, MS, UV-Vis, fluorescence, CD, ITC, DSC, PPC-DSC, TLC, IR, cell invasion assay, gel electrophoresis, PCR

Technical

GMP method development and validation, thermodynamic and structural characterization of macromolecules, molecular modeling, protein expression and purification, and organic synthesis.

Other

Instruction/training, public speaking, team management, lab management, grant writing, advanced computational, basic Spanish, and photography, business development and planning.

PROFESSIONAL DEVELOPMENT

BCCE Aug. 2014, Grand Rapids, MI. Oral presentation entitled "Utilizing active learning approach to create authentic research experiences for first year chemistry majors"

SEBIO May. 2014, Birmingham, AL. Oral presentation entitled "F.A.C.T.: Fluorescent Analysis of Cell-free Telomeres"

NACS Apr. 2013, New Orleans, LA. Poster presentation entitled "Addition of Bases to the 5' end of Human Telomeric DNA: Influences on thermodynamics and energetics of unfolding"

Graduate Student Research Days Mar 2013, UAB Oral presentation entitled "Understanding the influence of additional 5' bases to the end of the Human Telomere Model"

SERMACS Nov. 2012, Raleigh, NC. Poster presentation entitled "How dangling ends effect structure and thermodynamics of the human telomere quadruplex"

Gibbs Conference on Biothermodynamics Aug 2012, Carbondale, IL. Poster presentation entitled "End effects drive differences in melting energetics of human telomere models"

Annual Lester S. Andrews Graduate Symposium May 2012, MSU. Oral Presentation entitled "Understanding a highly stable hairpin through thermodynamics"

Graduate Student Research Days Mar. 2012, UAB. Oral Presentation entitled "Structural and thermodynamic analysis of a highly stable DNA hairpin"

Literature Seminar, Feb. 2012, UAB. Oral Presentation entitled "Rise of the Nanobots: Nucleic Acid Based Nanomechanical Devices"

- Hayden, K.L.; and Graves, D.E. (Manuscript in process) "A Thermodynamic and Structural Approach to Understanding a Highly Stable Hairpin DNA"
- Hayden, K.L.; and Graves, D.E. (Manuscript in process) "Isolation and Purification of Cell Free Telomeric DNA"
- Hayden, K.L.; and Graves, D.E. (2014) "Addition of Bases to the 5' end of Human Telomeric DNA: Influences on thermodynamics and energetics of unfolding" *Molecules*, 19, 2286-2298. doi:10.3390/molecules19022286
- Lanier, K.L.; Moore, J.D.; Smith, D.; Li, S.; Davis, B. and Shaw, W. (2008) "Quantitative Phospholipid Analysis of Soy Lecithin and Krill Lecithin by ³¹P NMR" Avanti Polar Lipids, Inc. Alabaster, Al. 35007
- Tidwell, C.P.; Bharara, P.; Rudeseal, G.; Rudeseal, T.; Rudeseal, F.H., Jr; Simmer, C.A.; McMillan, D.; Lanier, K.; Fondren, L.D.; Folmar, L.L.; Belmore, K. (2007) "Synthesis and Characterization of 5,10,15,20-Tetra [3-(3-trifluoromethyl)phenoxy] Porphyrin". *Molecules*, 12, 1389-1398.