

CRYSTAL A. BOLDEN-RUSH, PhD

EDUCATION

Wake Forest University <i>PhD in Molecular Medicine and Translational Science</i>	Winston-Salem, NC <i>May 2017</i>
The University of Texas at El Paso <i>B. S. Clinical Laboratory Science</i> Cum laude	El Paso, TX <i>May 2011</i>

RECENT PUBLICATIONS

- Williams AT, Muller CR, Eaker AM, **Bolden-Rush C**, Palmer AF, and Cabrales P. (2020). Polymerized Hemoglobin Maintains Cardiac Function After Extreme Anemia. *The FASEB Journal*, 34: 1-1. DOI:10.1096/fasebj.2020.34.s1.06291.
- Williams AT, Muller CR, Eaker AM, Belcher DA, **Bolden-Rush C**, Palmer AF, and Cabrales P. (2020). Polymerized Hemoglobin With Increased Molecular Size Reduces Toxicity in Healthy Guinea Pigs. *ACS Appl Bio Mater*. DOI: 10.1021/acsabm.0c00039
- Williams AT, Lucas A, Muller CR, Munoz C, **Bolden-Rush C**, Palmer AF, Cabrales P. (2020). Resuscitation from Hemorrhagic Shock With Fresh and Stored Blood and Polymerized Hemoglobin. *Shock*. DOI: 10.1097/shk.0000000000001530
- Williams AT, Lucas A, Muller CR, **Bolden-Rush C**, Palmer AF. and Cabrales P. (2020). Balance between oxygen transport and blood rheology during resuscitation from hemorrhagic shock with polymerized bovine hemoglobin. *J of Appl Phys*. 129:1, 97-107.
- Gu X, **Bolden-Rush C**, Cuddington CT, et al. (2020) Comprehensive characterization of tense and relaxed quaternary state glutaraldehyde polymerized bovine hemoglobin as a function of cross-link density. *Biotech and Bioeng*. 117: 2362– 2376. <https://doi.org/10.1002/bit.27382>

AWARDS

Young Investigator Award <i>The Society for Free Radical Biology and Medicine</i>	November 2015 <i>Boston, MA</i>
Distinguished Student in Clinical Chemistry <i>The University of Texas at El Paso</i>	May 2011 <i>El Paso, TX</i>
Recognition Award of Presentation <i>The American Society of Microbiology, ABRCMS</i>	November 2010 <i>Charlotte, SC</i>

ACTIVITIES

High-Touch Community Involvement Congruent with My Passions

Selection Committee Member <i>Postbaccalaureate Program, Baylor College of Medicine</i>	Remote <i>February 2021</i>
NAMIWalks Team Capitan, #TeamFamilySupport <i>National Alliance on Mental Illness, Franklin County</i>	Columbus, OH <i>June 2019</i>
Certified OSU REACH[®] Suicide Prevention Gatekeeper <i>The Ohio State University</i>	Columbus, OH <i>April 2019</i>
NRMN-CAN Postdoc Mentor Training Workshop Participant <i>The Ohio State University</i>	Rosemont, IL <i>May 2018</i>

EMPLOYMENT HISTORY

More than a Decade of Empowering People, Managing Data, & Obtaining Results

Homemaker, full-time

Multiple locations, VA, NC, TX

August 2019- Present

Winston-Salem Forsyth County Public Schools, part-time (30hrs/wk) **Winston-Salem, NC**
Substitute Teacher *October 2021- Present*

- Demonstrate a high level of motivation and flexibility as a temporary staff member of unstaffed schools.
- Maintain an environment conducive to learning and conflict resolution.
- Build positive, caring relationships with the youth based on respect, trust and good communication.

Elk Hill Charlottesville School, part-time (20hrs/wk) **Charlottesville, VA**
Department of Community Services, Visit Coach/Visit Supervisor *January 2020- August 2020*

- Develop strategies with the parent for interacting with children and foster family.
- Coordinate and schedule visits with biological and foster parent(s) according to court orders.
- Supervise visits to ensure the child's safety and appropriate, healthy parent interactions.
- Document progress toward goals that are necessary to regain custody of their children.

Elk Hill Charlottesville School, full-time (40hrs/wk) **Charlottesville, VA**
Substitute Teacher *September 2019-November 2019*

- Demonstrate a high level of competence, motivation, and commitment as a staff member.
- Develop and implement individualized plans with flexibility and creativity to attain appropriate educational goals for each youth.
- Implement educational practices that enhance the cognitive, social, and emotional growth of students.
- Provide a classroom environment for dealing with and resolving emotional problems of each youth.
- Maintain a physical classroom environment conducive to learning.
- Build positive, caring relationships with the youth based on respect, trust, and good communication.

Elk Hill Charlottesville School, part-time (20hrs/wk) **Charlottesville, VA**
Department of Community Services, Therapeutic Mentor *August 2019-August 2020*

- Work with youth to develop interpersonal, communication, social, and problem-solving skills, as well as age-appropriate behaviors and constructive use of leisure time.
 - Source and supervise recreational and social activities based on the goals established collaboratively with the youth, parents, and placing agency.
 - Demonstrate sensitivity to the needs of youth, flexibility, a non-threatening manner, respect for youth's autonomy, confidentiality, sociocultural values, personal goals, lifestyle choices, and family interactions, and appropriate professional boundaries and ethics.
 - Document progress and obstacles towards accomplishing goals.
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The Ohio State University, full-time (40hrs/wk) Columbus, OH

Chemical and Biomolecular Engineering, Post-Doctoral Researcher August 2017-July 2019

- Wrote an administrative supplement to a RO1 parent grant and obtained \$108,251/year for up to 3 years to fund my position, research, and professional development.
- Budgeted funds to cover the costs of research materials and professional development.
- Procured research materials and equipment in a timely fashion.
- Coordinated student efforts to maintain continual synthesis and inventory of glutaraldehyde-polymerized hemoglobin-based oxygen carriers (HBOCs).
- Distributed HBOCs to collaborators world-wide for further research, basic and pre-clinical.
- Liaisoned as a high-touch point of contact for the inquiries and concerns of collaborators.
- Analyzed and summarized data for presentation, publication, and grant updates.
- Wrote and updated standard operating procedures, manuscripts, and grant updates.
- Supervised and verified the consistency of HBOC batch production.
 - Standardized HBOC production by implementing good laboratory and good manufacturing practices.
 - Instructed undergraduate and graduate student researchers in the methods of synthesis and purification of HBOCs.
 - Evaluated the competency of student researchers and provided remediation when necessary.
 - Trained student researchers in the methods of biophysical and biochemical analysis for HBOCs and reviewed data to verify accuracy.

Wake Forest University, full-time (40hrs/wk) Winston-Salem, NC

School of Medicine, Candidate for PhD August 2012-May 2017

- Conceived a clinically relevant research question.
- Designed and executed a research strategy to answer the clinically relevant research question.
- Communicated and defended results successfully.
- Wrote paper and published data in a peer-reviewed journal.
- Collaborated with peers from other disciplines to design and conduct experiments for other projects.
- Oriented and trained undergraduates in laboratory skills and supervised research to ensure reproducible results and progress.

The Ohio State University, full-time (40hrs/wk) Columbus, OH

Research Intern July 2011-July 2012

- Gained familiarity with animal handling techniques, cell culturing techniques, and bacterial transformation to propel a project toward a timely completion.
- Corresponded with the project team in a timely fashion to discuss data and progress toward end goals.

Baylor College of Medicine, full-time (40hrs/wk) Houston, TX

Human Genome Sequencing Center, Research Intern May-July 2010

- Discovered synergistic combinations of new and existing antibiotics that effectively killed multi-drug resistant *E. coli* clinical isolates.
- Drafted paper to articulate experimental design to program director.
- Crafted poster and presented results at the ABRCMS obtaining award recognition.

William Beaumont Army Medical Center, part-time (20hrs/wk) El Paso, TX

Care Coordination Clerk October 2006-August 2009

- Created, implemented, and maintained a method for efficiently and reliably coordinating patient care between civilian and military healthcare providers.
- Tracked patient treatment records with civilian providers efficiently.
- Assisted patients by conveying their health recovery needs to social workers, making at least 30 phone calls on a daily basis.
- Answered 30 to 50 calls a day to take messages and relayed the caller to the appropriate person.
- Awarded the William Beaumont Army Medical Center Work Monetary Award in 2006, 2007, and 2008.