

Amber M. Hilderbrand

75 Ray Street • Newark, DE 19711
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Colburn Lab • 150 Academy Street
Office #219 • Newark, DE 19711

EDUCATION:

University of Delaware

Candidate for Doctor of Philosophy
Department of Chemical & Biological Engineering
Cumulative GPA: 3.64/4.00

Newark, DE
Fall 2013-Present

Iowa State University

Bachelors of Science in Chemical Engineering, *Cum Laude*
Cumulative GPA: 3.41/4.00

Ames, IA
Spring 2013

RESEARCH EXPERIENCE:

University of Delaware

Graduate Research Assistant

Advisor: Dr. April M. Kloxin

Newark, DE
August 2013-Present

- Establishing a 3D hydrogel system to incorporate collagen mimetic peptides (CMPs) to employ fibrillar structure on multiple length scales
- Designed and characterized CMPs to promote self-assembly from triple helices to fibrils in solution
- Designed and characterized light mediated polymer hydrogels to mimic various tissue stiffness

Iowa State University

Undergraduate Research Assistant

Advisor: Dr. Kaitlin Bratlie

Ames, IA
August 2012-August 2013

- Induced repolarization of Tumor Associated Macrophages using various cytokines and chemokines
- Performed cell culture to grow and prepare cells for testing
- Prepared and seeded plates to culture cells with various modified polyethylene glycol (PEG) particles
- Performed various biochemical assays to determine extent of repolarization

RESEARCH SKILLS:

Peptide and protein characterization: Reverse-phase HPLC, mass spectrometry (ESI, LC-MS), circular dichroism, Transmission Electron Microscopy (TEM), Atomic Force Microscopy (AFM), UV-Vis spectroscopy, dynamic light scattering (DLS)

Polymer Synthesis: Solid phase peptide synthesis, small molecule synthesis, organic chemistry for modification of commercial polymers, click chemistry (thiol-ene), fragment condensation

Polymer Characterization: Rheometry, ¹H-NMR

Cell culture and analysis: Mammalian cell culture, cell viability assays, enzymatic assays (ELISA)

Statistics: Minitab software, design of experiments

INDUSTRIAL EXPERIENCE:

Honeywell Aerospace

Engineering Intern

- Studied process and worked with operators to reduce part scrap

Plymouth, MN
May 2011-August 2011

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- Mapped temperatures of heating and cooling blocks to determine if gradients existed within block
- Developed and revised Standard Operating Sheets
- Provided engineering support for Cell 2 of the process
- Collected data for Value Stream Mapping Project

LEADERSHIP EXPERIENCE:

University of Delaware

Newark, DE

Colburn Club President

Fall 2015-Present

- Graduate student organization that plans events and serves as the link between faculty and student communication
- Lead general meetings with all representatives
- Aid in planning of various department events throughout year (holiday party, picnics, etc)
- Work closely with staff plan and participate in 2 graduate recruiting weekends

Teaching Assistant for Introduction to Polymers Course

Fall 2014

- Hosted office hours once a week to aid in student understanding of course material
- Graded weekly homework assignments and managed gradebook

DJ for Science Rocks!

Fall 2014-Present

- Chose music and host a segment on weekly science themed radio show on WVUD 91.3 FM

Colburn Club 2nd Year Representative; At-large representative

Fall 2013-Summer 2015

- Plan department holiday party, spring picnic, beach, ski trip
- Organize panels for 1st year students on Advisor Selections and Qualifying Exams
- Plan and promote monthly department Happy Hours

Iowa State University

Ames, IA

Minds of Tomorrow:

Fall 2009-Spring 2013

Co-Chair: 2011-2013; Publicity Co-Chair: 2010-2011; Ambassador: 2009-2010

- Grant based organization that promotes STEM fields in the classroom using various technologies such as LEGO® NXT kits
- Organized bi-weekly meetings
- Cooperatively selected grants to fund
- Attended outreach events and work with K-12 kids to promote STEM fields by introducing various engineering principles

Chemical Engineering Help Room Peer Mentor

February 2012-December 2011

- Worked with groups of up to 4 students and answer questions, work problems, and clarify concepts in the subjects of Chemical Engineering and General Chemistry

Academic Success Center Tutor

March 2011-May 2011

- Worked with groups of up to 4 students and answer questions, work problems, and clarify concepts in the subjects of Chemical Engineering and General Chemistry

PUBLICATIONS, PRESENTATIONS, AND AWARDS:

- **A.M. Hilderbrand**, E.M. Ovadia, M.S. Rehmann, P.M. Kharkar, C. Guo, A.M. Kloxin "4-D biomaterials for stem cell research." *In preparation.*
- Neutron Scattering Day 2015, University of Delaware, Newark, DE, November 2015. *Poster.*
- Collins Fellowship (2013-2014)