

POLY 300

EDUCATION

University of Oregon, Eugene, OR
Master of Science, Chemistry

Expected 2018

The University of Southern Mississippi, Hattiesburg, MS
Bachelor of Science, Polymer Science, GPA – 3.6, Magna Cum Laude
Minor: Chemistry

Spring 2016

RESEARCH EXPERIENCE

Research Assistant, Wiggins lab, USM

Fall 2014 – Spring 2016

- Synthesized high molecular weight carbon fiber precursor composed of polyacrylonitrile (PAN) copolymers utilizing reversible addition-fragmentation chain transfer (RAFT), resulting in greater cyclization intensities and greater thermal stability than free radical reactions.
- Performed RAFT, utilizing semi-batch technique, to synthesize novel PAN-NIPAM copolymers and obtained tunable cyclization behaviors.
- Characterized and analyzed polymers with methods including: GPC, NMR, IR, TGA, DSC, to confirm high molecular weight, identify novel structures, monitor rate of cyclization, and observe the exothermic nature of cyclization.
- Developed and implemented new workflow for IR data utilizing Excel and Omnic software, reducing procedure from hours to minutes.
- Maintained and repaired lab instruments, utilizing reference manuals for troubleshooting and determining best course of repair. Ranging from single component replacement to rewiring instruments, in compliance with manufacturer's specifications.

Independent Research Honors Thesis

Fall 2015 – Spring 2016

Title: The Effect of Acrylic Acid on Ring Formation in Polyacrylonitrile.

- Developed protocol for semi-batch RAFT copolymerization.
- Synthesized PAN-Acrylic Acid copolymers by RAFT and semi-batch techniques, finding that percentage of cyclization was increased by up to 5x's in semi-batch method compared to traditional batch polymerizations.
- Characterized polymer structure and the exothermic effects of cyclization on the product.
- Presented individual research poster, The Effect of Acrylic Acid on Ring Formation in Polyacrylonitrile, at Waterbourne Symposium Spring 2016. New Orleans, LA

WORK & VOLUNTEER EXPERIENCE

Laboratory Aid, Bonner Analytical Testing, Hattiesburg, MS

Spring 2012

- Collected field samples and performed environmental analysis on soil, air, water, and food samples, in compliance with government regulations.
- Performed environmental analysis on soil, air, water, and food samples.
- Devised and carried out study on extracting and refining biofuels from algae.

USM Mentor Program

Fall 2015 – Spring 2016

- Worked with freshmen and sophomores to teach lab technique, sample preparation, polymer reactions, literature review, and introduction and summary of undergraduate polymer science program.
- Tutored polymer science freshmen and sophomores in introductory polymer classes as well as general and organic chemistry.

Honors College Ambassador

Spring 2013 – Fall 2015

- Represented the Honors College at new student outreach events and led new student orientations.
- Led and organized student and community events between the Honors College and local orphanages and other charity organizations.
- Led weekly discussions with groups of 10-15 Honors college students about adjusting to college life, the honors college, and campus opportunities.
- Moderated Honors College guest lecture series for over 50 students.

Polymer Science Association

Fall 2012 – Spring 2016

- Coordinated with industry companies to arrange visits and guest lecturers from companies including G.E. and Algix.
- Organized association meetings for over twenty members. Arranged catering, merchandise, and association dues.
- Organized student events and activities including school organization soccer tournament.

Club Soccer Team USM

Fall 2015 – Spring 2016

- Organized and led practices for over twenty players.
- Coordinated with other schools to organize games, made travel arrangements for away games.

HONORS

Received full tuition merit based scholarship to the University of Southern Mississippi.

Fall 2012 – Spring 2016

Named Polymer Coatings Institute Magazine student of the month for achievements in polymer coatings course.

Spring 2016

Dean's List

Fall 2012 – Spring 2016

President's List

Spring 2016