

# HEATHER E. ESTES

## EDUCATION

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**BS**                      **Florida Institute of Technology, Melbourne, FL**  
Bachelor of Science, General Biology, Cum Laude (2007)

**MS**                      **University of North Carolina, Wilmington, NC**  
Master of Science, Chemistry, (expected to graduate in 2019)

## HONORS AND AWARDS

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**Phi Sigma Pi National Honor Society** (2016-present)  
**TriBeta, National Biological Honor Society** (2005-2007)  
**Phi Eta Sigma National Honor Society** (2003-2007)

## PRESENTATIONS AND ORGANIZATIONS

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**Nominated to present at the Strategic Asphalt Research Symposium** (Colorado Springs, CO 2017)  
**Presented at the Petersen Asphalt Research Conference** (Jackson Hole, WY 2016)  
**Presented at the Florida Science Academy**, (Orlando FL, 2005)

**American Chemical Society, Analytical Chemistry Division**, Local Chapter Secretary (2014-present)  
**American Association for Wind Engineering** (2014-present)  
**ASTM Member** (2012-present) - D08, D04, C24, E04, E44, D08.02 Secretary  
**International Society for Asphalt Pavements**, (2016-present)  
**National Women in Roofing**, Secretary for Education Committee (2016-present)  
**The Society of Collegiate Leadership & Achievement** (2016-present)  
**The Society for Advancement of Material and Process Engineering** (2015-present)

## PUBLICATIONS

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- *Durability of Polymer-Modified Asphalt Shingles*, H.E. Estes, T.M. Brown-Giammanco, Ph.D., and I.M. Giammanco, Ph.D. 2016 ISAP Symposium concurrent with 53<sup>rd</sup> Petersen Asphalt Research Conference. Jackson Hole, WY. July 18-21, 2016.
- *Full-Scale Pressure Distribution on Asphalt Shingles*, J.T. Smith, Ph.D., H.E. Estes, and M. Morrison, Ph.D. 4<sup>th</sup> American Association for Wind Engineering, Workshop. Miami, FL. August 14-16, 2016.
- *Using 3-D Laser Scanning Technology to Create Digital Models of Hailstones*, I.M. Giammanco, Ph.D., B.R. Maiden, H.E. Estes, and T.M. Brown-Giammanco, Ph.D. Bulletin of the American Meteorological Society. 2016.
- *Large-Scale and Full-Scale Laboratory Test Methods for Examining Wind Effects on Buildings*, H.E. Estes, C. Alfano, Ph.D., T. Johnston, T.M. Brown-Giammanco, Ph.D., and M. Morrison, Ph.D. Frontiers in Built Environment. 2017.

## RESEARCH EXPERIENCE

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**INSURANCE INSTITUTE FOR BUSINESS & HOME SAFETY**, Richburg, SC      April 2014-Present

### **Staff Scientist, Materials**

- Specialized in material identification to provide a better understanding of the performance of residential and commercial construction materials.
- Assist in research in the full-scale wind tunnel at the IBHS Research Center.
- Investigated how different materials respond when subjected to forces from wind-driven rain, high winds, hail impacts and wildfire exposure. Conducted chemical analysis on a variety of materials using wet chemistry and analytical equipment.
- Interacted with manufacturers to identify research needs for building materials.
- Developed and documented cost effective approaches to strengthen testing requirements.
- Conducted major field studies to assess the performance of roofing products as well as ground-truth hail investigations. Assisted in deployment of hail impact probes across the central Plains.

**PRI ASPHALT TECHNOLOGIES**, Tampa, FL

April 2012-April 2014

### **Analytical Chemist**

- Research and method development for asphalt, construction materials and crude oil. Investigated new instruments and techniques to increase proficiency in the lab.
- Forensic investigation of pavement, cements, and building materials and determined appropriate actions for improved materials.
- Perform a variety of wet chemistry techniques including extractions, digestions and titrations.
- Managed instrumentation including gas chromatography, FID/Introspect, FT-IR Spectroscopy, XRF, GPC, ICP and particle size analyzer.
- Establish a QA program that ensured the instruments were running properly.

**PARABEL**, Fellsmere, FL

2007 to 2012

### **Analytical Chemist II**

- Implemented various techniques for protein analysis, metals and water quality testing on algae and aquatic macrophyte species (*Lemnaceae*). Ultimately, assisting with developing a process for biodiesel and feed production.
- Performed analytical tests on materials, interpreted complex specifications and documented observations.
- Utilized navigation and maps to locate species of *Lemnaceae* in Asia and South America, and then traveled there to analyze protein content and conduct growth studies.
- Maintained, updated and performed equipment calibrations and equipment maintenance per procedures.

**FLORIDA INSTITUTE OF TECHNOLOGY**, Melbourne, FL

2003 to 2007

### **Lab Assistant**

- Conducted microscopic research and assisted graduate students with research on sea urchin (*Echinoidea*) digestive studies.
- Collected and identified benthic invertebrates.
- Participated in a presentation on a shell identifying webpage presented at the Florida Science Academy.