CLAY SWACKHAMER

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Education

The Pennsylvania State University — **University Park, PA**
Schreyer Honors College, The College of Engineering — *Class of 2015*
B.S. in Biological Engineering | Food and Biological Process Option — GPA: 3.92
Minor in Spanish
Passed Fundamentals of Engineering Exam (EIT Certification Pending)

The University of Alicante — **Alicante, Spain**
Completed 15 credit semester of courses taught in Spanish — *Fall 2014*
GPA:4.00

Experience

LignoLink, INC. — **Innovation Park, PA**
Engineering Intern — *Spring 2016-present*
- Researched impact of novel synthetic genes on digestibility of biomass crops including maize and poplar
- Collaborated with extension and industry professionals to develop custom small-scale biomass digestibility assays
- Designed the first website and logo for a small business and gained experience with business strategy

Penn State Department of Agricultural and Biological Engineering — **University Park, PA**
Teaching Intern — *Fall 2015*
- Assisted 35 students in course BE 301: Mathematical Modeling of Biological and Physical Systems
- Facilitated course objectives by holding office hours, teaching exam review sessions, and troubleshooting student work

McCormick & Company INC, Materials Process Engineering Group — **Baltimore, MD**
Engineering Intern — *Summer 2015*
- Benchmarked physical properties of principal products using 5 instruments in food powder technology platform
- Conducted over 300 experiments; processed data using descriptive statistical techniques and modeling
- Applied insights from benchmarking to reduce visual fill waste, with yearly cost savings objective of $160,000
- Identified data-driven opportunities for raising production output in blending department
- Collaborated with McCormick engineers in 3 countries to apply global knowledge base to Hunt Valley Plant

Salis Laboratory for Synthetic Biology — **University Park, PA**
Undergraduate Team Leader — *Spring 2013-Fall 2015*
- Led iGEM research team on codon optimization project with objective of maximizing protein expression in prokaryotes
- Received gold medal from independent panel of judges at iGEM international research conference
- Wrote original MATLAB scripts to redesign genes for fluorescent protein at codon level
- Awarded the synthetic biology certificate for undergraduates by the Synthetic Biology Engineering Research Center

Microbiological Engineering | Biological Engineering 468 — **University Park, PA**
Team Leader — *Summer 2015*
- Received Best in Class award for design of industrial amino acid production system by fermentation
- Presented at Northeast Agricultural and Biological Engineering Conference; won undergraduate paper competition

Penn State Department of Agricultural and Biological Engineering — **University Park, PA**
Undergraduate Team Leader-Biomass Densification Project — *Fall 2012-Spring 2013*
- Managed team of 4 undergraduates, designed and executed over 50 experiments
- Presented research poster at Penn State undergraduate research exposition, won third place in engineering division
- Co-Authored, Farm-Scale Biomass Pelletizer Performance for Switchgrass Pellet Production. 2015. Applied Engineering in Agriculture. 31(4): 559-567 (doi: 10.13031/aea.31.10803).

Activities

- *Treasurer*, Alpha Epsilon, Omicron chapter. National Honors Society of Biological Engineering, *2015-present*
- *Alumni Relations Chair*, Alpha Gamma Rho, National Agricultural Sciences Fraternity, *2013-2014*
- *Active Member*, American Society of Agricultural and Biological Engineers (ASABE), *2013-present*
- *Active Member*, PSU tennis club, *2012-2014*

Skills

- PCR, molecular cloning, enzymatic digestion and ligation, DNA sequencing analysis, gel electrophoresis, DNA extraction, fluorometer assays (TECAN)
- MATLAB, Excel, LaTeX, R, SAP Production Management Platform, Adobe Illustrator, APE Plasmid Editor
- Laboratory safety, certification through Penn State Environmental Health and Safety