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CLAY D. SWACKHAMER

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CURRENT ADDRESS:
302 Wartik Laboratory
State College, PA 16802

EDUCATION

The Pennsylvania State University — **University Park, PA**
Schreyer Honors College, The College of Engineering — *Class of 2015*
Bachelor of Science in Biological Engineering | Food and Biological Process Option — GPA: 3.91
Minor in Spanish
Passed Fundamentals of Engineering Exam (EIT certification pending) — *Fall 2015*

University of Alicante — **Alicante, Spain**
Completed a 15 credit semester of classes taught in Spanish, including a technical microbiology course with laboratory — *Fall 2014*
GPA: 4.00

EXPERIENCE

Penn State Department of Agricultural and Biological Engineering — **University Park, PA**
Teaching Intern — *Fall 2015*
- Assisted students and instructors in course BE 301: Mathematical Modeling of Biological and Physical Systems
- Facilitated course objectives by holding weekly 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 five instruments in food powder technology platform
- Conducted over 300 experiments; processed data using descriptive statistical techniques and modeling
- Applied insights from benchmarking to opportunities for reducing 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 three countries to apply global knowledge base to Hunt Valley Plant

Salis Laboratory for Synthetic Biology — **University Park, PA**
Undergraduate Team Leader — *Spring 2013-Present*
- 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 (SYNBERC)

Penn State Department of Biological Engineering, Biomass Densification Project — **University Park, PA**
Undergraduate Research Team Leader — *Fall 2012-Spring 2013*
- Managed team of four 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).

ACCOMPLISHMENTS

Biological Engineering 468 – Microbiological Engineering — **University Park, PA**
Team Leader — *Spring 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 first place in undergraduate paper competition

Engineering Design 100 — **University Park, PA**
PSU Engineering Student — *Fall 2012*
- Received "Best in Class" award for design of human powered portable radio charging device

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*

SKILLS

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