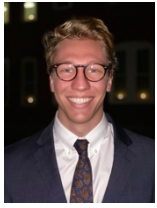


John G. Walker



EDUCATION

Clemson University, Class of 2020

August 2016 - May 2020

At Clemson University I am studying Biosystems Engineering. Clemson's Biosystems engineering program focuses on developing new designs to achieve our world's resource usage goals and minimize our ecological impact by using waste products for other useful processes, in other words – Sustainability Engineering. Students may choose between two main paths of study that include sustainable bioprocess engineering, with its basis in microbiology, and ecological engineering, with its basis in ecology. The Bioprocessing field focuses on the sustainable production of biorefinery compounds (biofuels, bioactive molecules and biomaterials) using metabolic pathways found in nature and green processing technologies. Further, Biosystems engineering encompasses the design of sustainable communities utilizing low-impact development strategies (bioretention basins, rainwater harvesting) for stormwater retention and treatment — and ecologically sound food and energy-crop production. Our main goal is to learn how to develop sustainable systems using our modern technology and our environment to help form our designs.

PROJECTS

The Utilization of Biosolids by Land Application and Gasification — *Clemson University Senior Design*

August 2019 - December 2019

This senior design course required each team to choose an engineering problem and provide a design process for implementation with viable solutions. Modeling software, economic analysis and professional connections were needed to provide a viable design. Although originally focusing on a more research based process concerning micro and nano plastics in soils with nonprofit Elemental Impact, my team and I decided to design a sustainable process for the Clemson University Wastewater Treatment Plant. The project's design provided a process to utilize the biosolids waste product differently than the current process, landfilling. After performing extensive literature review, economic analysis, and process flow diagram calculations, my team recommended a gasification process and additionally the utilization of biosolids through land application. Both used the waste product of biosolids as a means to generate electricity or as an organic fertilizer used for the Clemson University research farms. An in depth presentation as well as a comprehensive report relayed our findings. This process increased my skills in technical writing, strength as a presenter, and the ability to collect, process and convey information.

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jgw4@g.clemson.edu

Involvements

Current:

“The Crew” Beneath The Waves
Mentorship Program

Leader of “The Woodshop” music
collective

Seacoast Church Dream Center
Volunteer

Past:

Biosystems Engineering Club
President

FCA Small Group Leader

House Church Leader

Worship Leader for Bridgeway
Clemson Church

Software Programs

ENROADS: Intermediate

Matlab: Intermediate

AutoCad: Proficient

Stella Modeling: Intermediate

SuperPro: Intermediate

Oyster Reef Restoration — *Clemson Creative Inquiry*

August 2016 - May 2020

In this Creative Inquiry, our primary focus was to determine the best coating of wire for used crab pot structures in order to establish oyster reefs through oyster spat and implantation in the ACE basin of Edisto, SC. Laboratory research techniques were implemented and ecological impacts of different materials on an estuarian ecosystem were investigated.

Contact: Dr. Caye Drapcho, cdrapch@clemson.edu

COMSOL: Novice

Excel: Proficient

AWARDS

National Society of Leadership and Success acceptance

The Society for Collegiate Leadership & Achievement award

Peach Waste Biofuel Fermentation — *Clemson Creative Inquiry*

January 2019 - May 2019

In this Creative Inquiry, the fermentation of cull peaches by methanogen *Thermotoga neapolitana* was studied. With climate change threatening the well-being of all organisms on Earth, sustainable energy sources must be developed. Hydrogen gas, a sustainable energy source, was produced by the bacterium *T. neapolitana* as it underwent fermentation. As the semester progressed, the team planned to design a system to capture hydrogen gas as well as develop a pilot scale fermentation system, including heat exchangers, a solar water heater, and a PEM H₂ fuel cell.

Contact: Dr. Caye Drapcho, cdrapch@clemson.edu

EXPERIENCE

Biosystems Engineering Laboratories, Clemson SC — *Lab Technician*

January 2020 – May 2020

This position was under the supervision of associate professor Dr. Caye M. Drapcho of the Biosystems Engineering department and her fellow Ph.D. students. It required me to be self-motivated, directed, and organized in order to transition Dr. Drapcho into her new lab as well as coordinating and performing setup for the Biosystems Engineering laboratory courses on a day to day basis. This position also included leading environmental activism opportunities. Before the COVID-19 outbreak I had organized an environmental strike, sit in, and Earth Day symposium event that would allow for environmental outreach through student led sustainably focused organizations on campus. Unfortunately these events have been postponed until next semester to be led by our next club president.

Contact: Dr. Caye M. Drapcho, cdrapch@clemson.edu (864) 506 - 3106

Nature Adventures, Charleston SC — *Eco-Tour Guide*

Summer 2019 - Current

This position required me to know detailed information about the Charleston area on economic, environmental, historical, and practical levels in order to present information to a wide variety of audiences. Currently we are providing educational tours on plastic pollution with corporate creek clean up events. This position greatly increased my knowledge and ability to educate a wide range of people in wildlife ecology and environmental issues.

Contact: Dana Toy, (850) 485 - 0071

