



COLLEGE OF AGRICULTURE & LIFE SCIENCES

Soil, Water and  
Environmental Science



**SWES Colloquium Series 2017-2018**  
Department of Soil, Water and Environmental Science

## The Engineering Side of Biomass Utilization and Processing

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Biomass resources are available all around us and are frequently underutilized. These resources can come in the form of agricultural residues like pecan shells, guayule bagasse or cotton gin trash, forest residues, invasive species like tumbleweed and salt cedar, yard waste, organic materials and nutrients in wastewater, and even garbage on spacecraft. There are many opportunities to use these resources to meet our feed, water, and energy needs—with the right engineering. Thermochemical processes, namely pyrolysis, torrefaction, and hydrothermal liquefaction (HTL), provide platforms to convert low-value materials into heat, power, liquid fuels, adsorbents, fertilizers, and soil amendments. In all of these processes, there are trade-offs: yield vs. energy use, product quality vs. processing costs, etc. Engineering is the study of these trade-offs and the use of quantitative models to make decisions. The engineering approach is a theoretical and hands-on search for Goldilocks: finding just the right equipment and operating conditions to meet the process goals. Dr. Brewer will illustrate this approach in three current projects: hydrothermal liquefaction of algae, production of activated carbons to remove contaminants from ground water, and building a product portfolio from guar and guayule.

**Monday, April 16, 2018 -- 3:00pm**

**Marley 230**

**Light refreshments served in the courtyard at 2:45**



School of Earth and Environmental Sciences