

**Environmental Engineering**

**and Earth Sciences**

**EEES Department Seminar**

**Biotransformation of Agricultural Byproducts**

**Dr. Tyler Barzee**

Assistant Professor

University of Kentucky

**Abstract:**

Bioprocess engineering is a critical component for sustainable production of food, biofuels, biomaterials and other bioproducts. This seminar will present Dr. Tyler Barzee’s research in the numerous applications of microbes to support the goals of the circular bioeconomy. His research program is focused on three main objectives: 1) development of novel bioprocesses and food products; 2) biofuel production, greenhouse gas mitigation, nutrient cycling, and upgrading of agricultural byproducts; and 3) Life Cycle Assessment (LCA) and Techno Economic Analysis (TEA) of new technologies. The seminar will focus on biotransformation of agricultural byproducts with fungi (filamentous and yeast), bacteria, archaea, and microalgae for fermentation, cellular agriculture, additive biomanufacturing, and renewable energy applications. Specific research projects presented will include fungal-assisted cellular immobilization systems, production of fungal hydrogels for 3D bioprinting alternative protein food products, processing of pure mycelium materials, and anaerobic digestion of agricultural byproducts for renewable natural gas.

**About Dr. Barzee:**

Dr. Tyler Barzee received his BS in Biosystems Engineering from Clemson University and MS and PhD degrees in Biological Systems Engineering from UC Davis. He is currently an Assistant Professor of Fermentation and Bioprocessing at University of Kentucky. He has led over $2M in grants as PI or Co-PI and has authored 16 scholarly articles and book chapters. His efforts to engage the public in research relating to sustainability led him to be recognized with the UC Davis Office of Sustainability’s Campus Sustainability Award in 2019. While a student at Clemson, he was inspired by ASABE student rallies and now serves as chair of the P131 ASABE Committee, which administers a Student Rally Leadership and Networking Program to further expand benefits to biosystems engineering students.

**3:30 PM – 4:30 PM**

**Thursday, February 8, 2024**

**Rich Lab Auditorium**

***Attendance is mandatory for graduate students enrolled in***

 ***EES 8610, EES 9610, and GEOL 8610.***

***Refreshments following seminar.***