**Curriculum Vitae**

*Updated August 2025*

**Tyler J. Barzee, Ph.D., E.I.T.**

University of Kentucky

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# CURRENT POSITION

**Assistant Professor,** University of Kentucky, Department of Biosystems and Agricultural Engineering, Lexington, K.Y. July 2021 to present. Current DOE: 68.8% Research, 26.2% Instruction, 5.0% Service.

# EDUCATION

**Doctor of Philosophy,** Biological Systems Engineering, University of California Davis, December 2016 to March 2020. Dissertation: “Processing and Utilization of Anaerobic Digestate as Biofertilizer for Production of Crops and Microalgae”. Advisor: Ruihong Zhang. GPA: 3.96.

**Master of Science,** Biological Systems Engineering, University of California Davis, September 2014 to December 2016. Advisor: Ruihong Zhang. GPA: 3.95.

**Bachelor of Science,** Biosystems Engineering, Clemson University, August 2010 to May 2014. Emphasis: Sustainable Bioprocess Engineering. GPA: 3.86. Magna Cum Laude.

# PROFESSIONAL EXPERIENCE

**Assistant Professor,** University of Kentucky, Department of Biosystems and Agricultural Engineering, Lexington, K.Y. July 2021 to present. Supervisor: Michael D. Montross, Ph. D., P.E.

**Postdoctoral Scholar,** University of California Davis, Department of Biological and Agricultural Engineering, Davis, C.A. March 2020 to July 2021. Supervisor: Ruihong Zhang, Ph.D.

**Technical Review Administrator**, University of California Davis, California Biomass Collaborative, Davis, C.A. March 2020 to July 2021. Supervisor: Stephen Kaffka, Ph.D.

**Associate Instructor,** University of California Davis, Department of Biological and Agricultural Engineering, Davis, C.A. September 2019 to December 2019. Supervisor: Tina Jeoh, Ph.D.

**Graduate Student Researcher,** University of California Davis, Department of Biological and Agricultural Engineering, Davis, C.A. September 2014 to March 2020. Supervisor: Ruihong Zhang, Ph.D.

**Teaching Assistant**, University of California Davis, Department of Biological and Agricultural Engineering, Davis, C.A. September 2016 to March 2019. Supervisor: Ruihong Zhang, Ph.D.

# LICENSURE AND CERTIFICATION

Engineer-In-Training, Kentucky, Credential #14-608-39.

# SUMMARY

***Distribution of Effort***

|  |  |  |  |
| --- | --- | --- | --- |
| **Fiscal Year** | **Research (%)** | **Instruction (%)** | **Service (%)** |
| 2025 | 68.8 | 26.2 | 5.0 |
| 2024 | 75.0 | 20.0 | 5.0 |
| 2023 | 72.0 | 23.0 | 5.0 |
| 2022 | 94.5 | 0.5 | 5.0 |

***Research***

*Grants and Gifts1*

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **2021-present** | **<2021** | **Total** |
| PI Nationally Competitive | $494,263 (5) | $30,000 (1) | $524,263 (6) |
| Co-PI Nationally Competitive | $1,093,353 (4) | - | $1,093,353 (4) |
| PI Other | $223,702 (11) | - | $223,702 (11) |
| Co-PI Other | $576,669 (8) | - | $576,669 (8) |
| Total | $2,387,987 (28) | $30,000 (1) | $2,417,987 (29) |

1 Number of grants in parenthesis

*Publications1*

|  |  |  |  |
| --- | --- | --- | --- |
| **Status** | **2021-present** | **<2021** | **Total** |
| Refereed - Published | 18 (12) | 3 (1) | 21 (13) |
| Refereed – In Press | 1 (1) | - | 1 (1) |
| Refereed - In Review | 1 (0) | - | 1 (0) |
| Non-Refereed2 - Published | 3 (1) | 11 (3) | 14 (4) |
| Total | 23 (14) | 14 (4) | 37 (18) |

1 Publications in parenthesis are as first author, corresponding author, or when graduate student under direct supervision is first author

2 Non-refereed publications include book chapters, reports, conference papers, and magazine articles.

# CURRENT GRANTS

1External, 2 Internal, 3 Federal, 4 State, 5 Private/Industry/Nonprofit/Organization, 6 Professional Organization, 7 University

## Federally Competitive

1. Saffron, C., M., Wei, L., Shi, J., **Barzee, T.,** Monono, E., M. 2024. Travel: Symposium on Science and Technology Driving the Bioeconomy 2024. NSF CBET – EchemS1,3. $**19,000.** 6/1/2024 – 5/31/2026. Barzee: Co-PI.
2. Messer, T., **Barzee, T**. REU Site: Multidisciplinary Approaches for Overcoming Water Resources and Sustainable Engineering Challenges in Appalachian Regions. NSF1,3. **$500,226**. 6/1/2024 – 5/31/2027. Barzee: Co-PI.
3. **Barzee, T.**, Montross, M., McNeil, S., Overhults, D., Johnson, R. 2023. Technical Assistance for Farms and Rural Small Businesses Applying to the USDA Rural Energy for America Program (REAP). USDA Rural Business Cooperative Service1,3. **$149,957**. 10/1/2023 – 9/30/2025. Barzee: PI.
4. **Barzee, T**., Adedeji, A., Schendel, R. 2023. Development of Novel and Sustainable Cell-Cultivated Foods Through Additive Biomanufacturing. USDA-NIFA AFRI1,3. **$294,763**. 8/1/2023 – 7/31/2026. Barzee: PI.
5. Schendel, R., Adedeji, A., **Barzee, T.**, Hamaker, B. 2022. Transforming Distillers’ Spent Grains into Novel Food Ingredients with Prebiotic and Antioxidant Characteristics. USDA-NIFA AFRI1,3. **$274,500.** 8/1/2022 – 7/31/2025. Barzee: Co-PI.

## Industry/State/Professional Organization

1. Kaffka, S., **Barzee, T.** Dairy Methane Reduction Programs Technical Review. California Department of Food and Agriculture1,4. 1/1/2025 – 12/31/2025. **$60,000**. Barzee: Co-PI. **(UK Subaward currently under negotiation with Prime)**.

## Internal

1. **Barzee, T.**, Kim, M. 2024. Sustainable Enhancement of Anaerobic Digestion: Leveraging Microbiome Insights to Improve Stability and Biomethane Production During Anaerobic Digestion of Heterogenous Organic Wastes. UK VPR eRPA Program2. **$44,466**. 5/1/2024 – 4/30/2025. Barzee: PI.

# COMPLETED GRANTS

1External, 2 Internal, 3 Federal, 4 State, 5 Private/Industry/Nonprofit/Organization, 6 Professional Organization, 7 University

## Federally Competitive

1. Zhang, R., **Barzee, T. J.**, Fan, M. 2021. Demonstration of a Mobile Digestate Processing System to Maximize Food Waste Diversion and Create Valuable Biofertilizer Products. US EPA1,3. **$299,627**. 2/1/2021 – 1/1/2024. Barzee: Co-PI.

## Industry/State/Professional Organization/Nonprofit Organization

1. Chwatko, G., **Barzee, T.**, 2024. PHA Synthesis from Bourbon Stillage. Spirited Inc.1, 5. **$50,000.** 12/15/2024 – 4/30/2025. Barzee: Co-PI.
2. **Barzee, T.**, Berron, B. 2024. GC Analysis of Spirits. Steric Systems1,5. **$24,318.** 11/2024 – 3/2025. Barzee: PI.
3. **Barzee, T.**, Berron, B. Screening and characterization of Lesaffre solutions for whisky. Fermentis1,5. **$46,486**. 3/1/2024 – 2/28/2025. Barzee: PI.
4. Berron, B., **Barzee, T.**, Trinkle, C., Cochell, T., Renfro, M. 2023. James B Beam Institute Barrel Research Prepay for 2024. Jim Beam Brands Company1,5. **$143,000**. 11/19/2023 – 6/30/2025. Barzee: Co-PI.
5. Kaffka, S., **Barzee, T.** 2023. Dairy Methane Reduction Programs Technical Review. California Department of Food and Agriculture1,4. 1/1/2023 – 12/31/2024. **$60,030**. Barzee: Co-PI.
6. **Barzee, T.**, Brittenham, B., Carrier, J. 2023. Student Rally Leadership Networking Program. ASABE Initiative Fund1,6. **$12,000**. 12/20/2023 – 10/31/2024. Barzee: PI.
7. **Barzee, T.** 2023. Anaerobic Digestion of Stillage. Bell Engineering 1,5. **$1,000**. 8/1/2023 – 9/8/2023. Barzee: PI.
8. **Barzee, T.**, Brittenham, B., Carrier, J. 2022. Student Rally Leadership Networking Program. ASABE Initiative Fund1,6. **$18,000**. 11/9/2022 – 10/31/2023. Barzee: PI.
9. Kaffka, S., **Barzee, T.** 2022. Dairy Methane Reduction Programs Technical Review. California Department of Food and Agriculture1,4. 1/1/2022 – 12/31/2022. **$99,241**. Barzee: Co-PI.
10. **Barzee, T.**, Brittenham, B., Carrier, J. 2021. AEM Competition Reboot – Step 1. ASABE Initiative Fund1,6. $**19,500**. 11/1/2021 – 2/28/2023. Barzee: PI.
11. **Barzee, T. J.**, Jones, C., Edalati, A. 2019. Initiating a CA/NV Section ASABE Student Rally. ASABE Initiative Fund1,6. **$30,000**. 5/1/2019 – 5/1/2021. Barzee: Key Contact, Lead Author.

## Internal

1. Yates, E., **Barzee, T.** 2025. Microbial Dynamics in Non-Alcoholic Beer: Assessing the Implications of Contamination from Retail Draft Lines. UK MG-CAFE2. **$1,000**. 2/8/2025 – 6/30/2025. Barzee: PI (Undergraduate Student Supervisor).
2. Lin, B., **Barzee, T.** 2025. Kasu-tori Shochu Beverage Production by Re-Fermentation and Distillation of Sake Lees. UK MG-CAFE2. **$1,000**. 2/8/2025 – 6/30/2025. Barzee: PI (Undergraduate Student Supervisor).
3. Adedeji, A., Shi, J., **Barzee, T.** 2024. Replacement of a Dedicated Shared Equipment (Differential Scanning Calorimetry, DSC) needed for Energy Analysis in Bioenergy, Food, and Biomaterial Research at UK-COE & CAFE. UK VPR eRPA Program2. **$93,910.** 5/1/2024 – 4/30/2025. Barzee: Co-PI.
4. Annamalai, R. T., **Barzee, T.** 2023. A Bottom-Up Approach for Sustainable Cultivated Meat Production. UK VPR Office Igniting Research Collaborations Program2. **$29,732.** 7/1/2023 – 12/31/2023. Barzee: Co-PI.
5. Adedeji, A., **Barzee, T.**, Messer, T., Shi, J. 2023. Fourier Transform Infrared Spectrometer Replacement Grant. UK Equipment Grant 2,7. **$40,756**. 5/1/2023 – 10/1/2023. Barzee: Co-PI.
6. Shi, J., Adedeji, A., Ford, W., Barzee, T., Messer, T. 2022. Particle Size Analyzer to Enable New Research Capacities for Multistate S1041 & NC1023, CAFE Research Office2, 7, **$64,646**. Barzee: Co-PI.
7. **Barzee, T.** 2022. Water Conservation Measures in Kentucky Bourbon Distilleries, Research Activity Award. UK College of Agriculture, Food, & Environment2. **$3,000**. 11/1/2022 – 6/30/2022. Barzee: PI.
8. **Barzee, T.**, DeBolt, S., Bokros, N., Verges, V., Byrd, Z. 2022. Sustainable Bourbon-Shrooms: A Mutual Partnership for Kentucky Distillers and Mushroom Farmers. UK Office of Sustainability2. **$42,996**. 7/1/2022- 6/30/2023. Barzee: PI.

# OTHER FUNDING

1. BMC Contracting Fellowship Fund. 2023. $**50,000**. Graduate student fellowship for Barzee Bioprocessing Lab.

# PENDING GRANTS AND CONTRACTS

1External, 2 Internal, 3 Federal, 4 State, 5 Private/Industry/Nonprofit/Organization, 6 Professional Organization, 7 University

## Federally Competitive

1. Meehan, B., **Barzee, T.** STTR: Optimization of Extremophile Fermentation System Components for Low-Cost PHA Bioplastic Production from Waste Streams. DOE1,3. **$105,000 requested (UK portion)**. Proposal Submitted 2/26/2025. Barzee: UK PI.
2. Sanderson et al. Central Appalachian Regional Education Research Center (CARERC). NIOSH1,3. **11,220,596 requested**. Proposal Submitted 12/17/2024. Barzee: Co-I.
3. Meehan, B., **Barzee, T.** Production of Polyhydroxyalkanoates from Bourbon Stillage. USDA-NIFA STTR1,3. 8/1/2025 – 7/31/2026. **$175,000 requested**. Proposal Submitted 9/17/2024, *PI Notified of Recommendation for Funding in November 2024*. Barzee: Co-PI.
4. Barros, J., Wan, E., **Barzee, T.** PARTNERSHIP: Harnessing Catechyl Lignin from Soybean Hulls for Sustainable Production of Aromatic Chemicals and Bioproducts. USDA-NIFA AFRI1,3. 8/1/2025 – 7/31/2029. **$799,179 requested**. Proposal Submitted 10/1/2024. Barzee: Co-PI

## Industry/State/Professional Organization/Nonprofit Organization

1. Starkewolfe, Z., **Barzee, T.** Fermentation of Agricultural Sidestreams to Enhance Sensory Appeal, Color Transition, and Cost-Effectiveness of Plant-Based Meats through Meat Science, Industry, and Land-Grant Collaboration. Good Food Institute 1, 5. **$300,000 requested**. Proposal Submitted 5/15/2025. Barzee: Co-PI (UK Lead).
2. Bradley, R., Baer, M., **Barzee, T.** Production of Mycelium Materials in Kentucky. Bluegrass AgTech Corp.1, 3. **$100,000 requested (+$100,000 match from AXIS, LLC)**. Proposal Submitted 3/10/2025. Barzee: Co-PI (UK Lead).

# NON-AWARDED GRANTS

1 External, 2 Internal, 3 Federal, 4 State, 5 Private/Industry/Nonprofit/Organization, 6 Professional Organization, 7 University

1. Mandalika, A., **Barzee, T.**, Drapcho, C. Valorization of Sugarcane Factory Molasses into Biofuels and Biomaterials. USDA-NIFA AFRI1,3. **$299,987** **requested**. Proposal Submitted 9/30/2024. Barzee: Co-PI.
2. **Barzee, T.**, Archer, E., Bayram, O., Gault, A., McIlhagger, A. TRIPARTITE: Circular Biomanufacturing of Myco-Thread from Distillery Byproducts. USDA-NIFA AFRI1,3. 8/1/2025 – 7/31/2028. **$418,361 requested from NIFA ($1.1M total with Republic of Ireland and Northern Ireland Governments)**. Proposal Submitted 9/30/2024. Barzee: PI.
3. Knutson et al. Collaborative Research: FEC: Manufacturing Sustainable Materials for Medical Uses from Renewable Feedstocks. NSF1,3. **2,000,000 requested**. Proposal Submitted 1/28/2025. Barzee: Co-PI.
4. **Barzee, T.**, DeBolt, S., Mark, T., Zhao, S., Morgan, M. Cultivation, Processing, and Consumer Preferences of Culinary Mushrooms Produced using Spent Grains of the American Spirits Industry. USDA-NIFA AFRI1,3. 8/1/2025 – 7/31/2028. **$641,883 requested**. Proposal Submitted 9/25/2024. Barzee: PI.
5. Akinbode, A., **Barzee, T.**, Schendel, R., Ajuwon, Bettenhausen, H. Artificially Induced Abiotic Stress to Reduce Malting Time and Improve Malt Quality. USDA-NIFA AFRI1,3. **$649,413 requested**. Proposal Submitted 9/25/2024. Barzee: Co-PI.
6. Lynn, B., Rankin, S. 2024. Acquisition of a Supercritical Fluid Chromatography – Mass Spectrometry System for Advanced Bioproducts Research. UK VPR2. **$240,000 requested.** Pre-proposal Submitted 2/27/2024. Barzee: Key Personnel.
7. Chwatko, M., **Barzee, T.,** 2024. FMSG ECO BIO: Tackling the polyhydroxyalkanoates manufacturing and end of life challenges. NSF ENG – CMMI, FM1,3. **$498,064 requested.** Proposal Submitted 4/11/2024. Barzee: Co-PI.
8. **Barzee, T.**, Shi, J., Qian, F., Kim, D. Y., Montross, M., Kim, M., Mba-Wright, M., Li, Y. Autotrophic Solid State Bioreactor System for Intensified Production of Polyhdroxyalkanoates from CO2. DOE FECM1,3. **$2,459,136 requested**. Proposal Submitted 4/29/2024. Barzee: PI.
9. Trotta, R., **Barzee, T.** Feeding Retrograded Steam-Flaked Corn: Reducing Methane Emissions, Decreasing Urinary N Excretion, and Increasing Energy Retention in Finishing Cattle. USDA Southern SARE1,3. **$400,000 requested**. Pre-Proposal Submitted 6/3/2024. Barzee: Co-PI.
10. Rankin, et al. 2023. NSF Engineering Research Center for Lignin Engineering, Analysis and Research for Sustainable Technology (CLEAReST). NSF1,3. **$26,000,000 requested**. Proposal Submitted 5/8/2023. Barzee: Senior Personnel.
11. **Barzee, T**., DeBolt, S., Mark, T., Morgan, M., Zhao, S. 2023. Bourbon Shrooms: Cultivation, Processing, and Consumer Preferences of Culinary Mushrooms Produced Using Distillers’ Spent Grains. USDA-NIFA AFRI1,3. **$649,964 requested**. Proposal Submitted 9/27/2023. Barzee: PI.
12. Mandalika, A., **Barzee, T.**, Drapcho, C. 2023. Valorization of Sugarcane Factory Molasses into Biofuels and Biomaterials. USDA-NIFA AFRI1,3. **$300,000** **requested**. Proposal Submitted 10/5/2023. Barzee: Co-PI.
13. Adededji, A., Schendel, R., **Barzee, T.**, Ajuwon, Bettenhausen. 2023. Optimizing Photon-Induced Abiotic Stress Conditions to Reduce Processing Time and Improve Nutritional Quality in Malted Barley. USDA-NIFA AFRI1,3. **$785,000** **requested**. Proposal Submitted 9/28/2023. Barzee: Co-PI.
14. **Barzee, T.**, Chwatko, G. 2023. Laboratory and Pilot Investigation of PHA Bioplastic Production from Bourbon Stillage. Spirited1, 5. **$290,316 requested.** Proposal Submitted 7/19/2023. Barzee: PI.
15. Berron, B., **Barzee, T.**, Morgan, M. 2023. Comparison of Pinnacle AW Against Benchmark Strain. AB Biotek1,5. **$11,550 requested.** Proposal Submitted 4/28/2023. Barzee: Co- PI.
16. Annamalai, R. T., **Barzee, T.** 2023. Creating Marbled Cultivated Meat Using 3D Printing, Microtissue Cultures, and Fungal Scaffolds. USDA National Institute for Cellular Agriculture at Tufts University1,3,7. **$50,000 requested.** Proposal Submitted 3/31/2023. Barzee: Co-PI.
17. **Barzee, T.** 2023. Consolidated Microbial Scaffold Production for Deployable Cell-Cultivated Foods. DARPA1,3. **$949,383 requested**. Proposal Submitted 2/6/2023. Barzee: PI.
18. Xiong, Y., Suman, S., Adedeji, A., **Barzee, T.** 2023. Plant-based Meat Alternatives: Chemistry and Structuring Science. UK VPR Office Emerging Themes for Research Program2. **Up to $300,000** **requested** (budget not required for pre-proposal). Pre-proposal Submitted 3/23/2023. Barzee: Co-PI.
19. Mandalika, A., **Barzee, T.**, Drapcho, C. Valorization of Sugarcane Factory Molasses into Antioxidant-rich Beverages. USDA-NIFA AFRI1,3. **$299,650 requested.** Proposal Submitted 10/6/2022. Barzee: Co-PI.
20. Berron, B. J., Morgan, M., **Barzee, T.**, DeBolt, S. 2022. Three Strain – Lallemand Strain to Distillate Analysis. Lallemand1,5. **$49,123 requested**. Research Project Request Submitted 2/14/2022. Barzee: Investigator.
21. Shi, J.,et al. 2022. Artificial Intelligence-Sensor System Enabled Precision Municipal Solid Waste Recovery and Valorization. NSF EPSCoR RII Track 21,3. **$6,000,000 requested**. Proposal Submitted 1/31/2022. Barzee: Co-I.
22. Mark, T., **Barzee, T.**, Patalee, M. A. B., Kim, G. 2022. Hemp Market Structure, Pricing, and Sustainability. USDA NIFA1,3. **$251,841** requested. Proposal Submitted 6/29/2022. Barzee: Co-PI.
23. **Barzee, T**., Santillan-Jimenez, E., Groppo, J., Quinn, J., Zeller, A. 2022. Improving the economics of CO2 utilization from membrane-scrubbed flue gas by microalgae: alkaliphilic algae strains for the production of high value plastics. DOE1,3. $**1,789,900 requested**. Proposal Submitted 5/25/2022. Barzee: PI.
24. Zhang, R., Pan, Z. 2021. BioBobaTM: Product Development of a New Healthy Boba Innovation. UC Davis Venture Catalyst, Office of Research1,7. **$50,000 requested**. Proposal Submitted 3/3/2021. Barzee: Key Personnel.

# PUBLICATIONS

[Google Scholar](https://scholar.google.com/citations?hl=en&user=j2GTpF0AAAAJ&view_op=list_works&sortby=pubdate)

\* Corresponding author, † Graduate student under direct supervision, ‡ Undergraduate student under direct supervision

## Refereed Journal Articles (21 published, 1 under-review)

### Published

1. Sarhan, R. †, Berron, B., Crofcheck, C., Joyce-Welsko, G. **Barzee, T. J.\*** 2025.Comparison of Laboratory-Scale Bourbon Whiskey Mashing and Fermentation to Pilot-Scale. *Journal of the Institute of Brewing* 131(2) (CiteScore: 6.2). <https://doi.org/10.58430/jib.v131i2.73>.
2. Ristola, K. J.\*, Messer, T., Crofcheck, C., **Barzee, T. J.**, Sanderson, W. 2025. Wetland Treatment Systems for Municipal Wastewater at a Bourbon Distillery and Potential Value of Incorporating Stillage for Water Treatment Enhancement. *Journal of Natural Resources and Agricultural Ecosystems,* 3(2), 89-99. <https://doi.org/10.13031/jnrae.16206>
3. Roy, K. R.†, Byrd, Z., Sama, M. P., **Barzee, T. J.**\*. 2025. Valorization of Bourbon Stillage through Production of Tunable Pure Mycelium Materials. *Fungal Biology and Biotechnology*, 12, 10 (CiteScore: 10.2). <https://doi.org/10.1186/s40694-025-00202-y>
4. Doyle, L.†, Talukdar, S.†, Xiong, Y., Adedeji, A., **Barzee, T. J.** \*. 2025. Evaluation of the Gelation Characteristics and Printability of Edible Filamentous Fungi Flours and Protein Extracts. *Foods*, 14(6), 923(CiteScore: 7.4). <https://doi.org/10.3390/foods14060923>.
5. Talukdar, S. †, **Barzee, T.J.**\* 2025. Metabolically Active Fungus is Not Always Required for Fungal-Assisted Microalgae Immobilization. *Algal Research*, 86(CiteScore: 9.4). <https://doi.org/10.1016/j.algal.2025.103908>
6. Ogawa, M., Moreno-Garcia, J.**\*, Barzee, T. J.**\* 2024. Filamentous Fungal Pellets as Versatile Platforms for Cell Immobilization: Developments to Date and Future Perspectives. *Microbial Cell Factories*, 23(CiteScore: 9.3). <https://doi.org/10.1186/s12934-024-02554-3>
7. Hockensmith, D.†,Crofcheck, C.\*, **Barzee, T. J.\*** 2024.Impacts of Material Characteristics on the Anaerobic Digestion Kinetics and Biomethane Potential of American Bourbon and Whiskey Stillage. 367. *Journal of Environmental Management*, 367 (CiteScore: 13.7). <https://doi.org/10.1016/j.jenvman.2024.121975>
8. Cao, L., **Barzee, T. J.,** El Mashad, H. M., Pan, Z., Zhang, R.\* 2024. Potential of Utilizing Almond Hull Extract for Filamentous Fungi Production by Submerged Cultivation. *Food Bioengineering*, 3(1), 3-13. (CiteScore: 2.7). <https://doi.org/10.1002/fbe2.12079>
9. Schmitt, P.\*, Sanderson, W., Rogers III, J., **Barzee, T.**, Peterson, M.\* 2024. A Comparison of Devices for Race Day Characterization of North American Turfgrass Thoroughbred Racing Surfaces. *Animals*, 14(1), 38. (CiteScore: 4.9). <https://doi.org/10.3390/ani14010038>
10. Talukdar, S.†, **Barzee, T. J.\*** 2023. Fungal-Assisted Immobilization of Microalgae for Simultaneous Harvesting and Product Customization: Effects of Geometry, Loading, and Microalgae Concentration. *Algal Research*. (CiteScore: 9.4). <https://doi.org/10.1016/j.algal.2023.103242>
11. Edalati, A., Chen, Y., **Barzee, T. J.**, El-Mashad, H. M., Zhang, R.\* 2023. Effect of Mechanical Solids Separators on Potential Reduction of Methane Emissions from Dairy Manure Storage. *Journal of the ASABE*, 66(3), 689-701. (CiteScore: 3.1). <https://doi.org/10.13031/ja.15371>. **2024 ASABE Superior Paper Award.**
12. **Barzee, T. J.**, El-Mashad, H., Burch, A. R., Franz, A. K., Zhang, R.\* 2023. Immobilization of Diatom *Phaeodactylum tricornutum* with Filamentous Fungi and its Kinetics. *Journal of Microbiology and Biotechnology*, 33(2), 251-259. (CiteScore: 5.5). <https://doi.org/10.4014/jmb.2209.09042>
13. El Mashad, H.\*, **Barzee, T. J.**, Franco, R. B., Zhang, R., Kaffka, S., Mitloehner, F. 2023. Anaerobic Digestion and Alternative Manure Management Technologies for Methane Emissions Mitigation on California Dairies. *Atmosphere*, 14(1). (CiteScore: 4.6). <https://doi.org/10.3390/atmos14010120>
14. **Barzee, T. J.**, Yothers, C., Edalati, A., Rude, K., Chio, A., El-Mashad, H., Franz, A., Zhang, R.\* 2022. Pilot Microalgae Cultivation Using Food Waste Digestate with Minimal Resource Inputs. *Bioresource Technology Reports*, 19 (Part A):101200. (CiteScore: 7.2). <https://doi.org/10.1016/j.biteb.2022.101200>.
15. **Barzee, T. J.\***, El-Mashad, H., Cao, L., Chio, A., Pan, Z., Zhang, R. 2022. Cell-Cultivated Food Production and Processing: A Review. *Food Bioengineering* 1(1), 4-25. (CiteScore: 2.7). <https://doi.org/10.1002/fbe2.12009>.
16. Rude, K., Kutney, S., Yothers, C., **Barzee, T. J.**, Zhang, R., Franz, A.\* 2022. Growth Potential of Microalgae on Ammonia-Rich Digester Effluent for Wastewater Remediation. *Algal Research*, 62. (CiteScore: 9.4). <https://doi.org/10.1016/j.algal.2021.102613>.
17. **Barzee, T. J.**, Cao, L., Pan, Z., & Zhang, R.\* 2021. Fungi for Future Foods. *Journal of Future Foods*, *1*(1), 25–37. (CiteScore: 5.8). <https://doi.org/10.1016/J.JFUTFO.2021.09.002>.
18. **Barzee, T. J.**, Edalati, A., Rapport, J. El-Mashad, H., Zhang, R.\* 2021. Characterization of Nutrients and Biofertilizer Production from Food Waste and Dairy Manure Digestates. *Transactions of the ASABE* 64(4), 1153-1164*.* (CiteScore: 3.1). <https://doi.org/10.13031/trans.13767>.
19. Lin, Y.\*, Zhao, Y., Ruan, X., **Barzee, T. J.**, Zhang, Z., Kong, H., Zhang, X.\* 2020. The Potential of Constructed Wetland Plants for Bioethanol Production. *BioEnergy Research* 13, 43-49. (CiteScore: 6.7). <https://doi.org/10.1007/s12155-019-10065-y>.
20. **Barzee, T. J.\***, Edalati, A., El-Mashad, H., Wang, D., Scow, K., Zhang, R.\* 2019. Digestate Biofertilizers Support Similar or Higher Tomato Yields and Quality Than Mineral Fertilizer in a Subsurface Drip Fertigation System. *Frontiers in Sustainable Food Systems.* (CiteScore: 5.6). <https://doi.org/10.3389/fsufs.2019.00058>.
21. Johnson. A. B., **Barzee, T.**, Holbert, K. D., Poarch, S. L., Storm, J. J.\* 2018. Effect of *Cuterebra fontinella* (Mouse Bot Fly) on the Movement of *Peromyscus leucopus* (White-footed Mouse). *Southeastern Naturalist* 17(4), 597-604. (CiteScore: 1.2). <https://doi.org/10.1656/058.017.0413>.

### Submitted

1. Olanrewaju, T. O., Schendel, R. R., **Barzee, T. J.**, Adedeji, A. A.\*. Food Applications and Sustainability of Bourbon Whiskey By-product – A Review. Submitted to *Comprehensive Reviews in Food Science and Food Safety* on 7/25/2025. Under review.

## Refereed Book Chapters

1. **Barzee, T. J.\***, Martin-Ryals, A., Wang, Ke. 2025. Chapter 4. Treatment Strategies in Bioenergy Production. In: The Future of Anaerobic Digestion. Elsevier. Ed. Hassanein, A. In Press.

## Book Chapters (Not refereed)

1. **Barzee, T. J.**, El-Mashad, H. M., Zhang, R., Pan, Z. 2019. Chapter 12: Carrot. in: *Integrated Processing Technologies for Food and Agricultural By-Products*, (Eds.) Pan, Z., Zhang, R., Zicari, S., Academic Press. <https://doi.org/10.1016/B978-0-12-814138-0.00012-5>.
2. Rude. K. M., **Barzee, T. J.**, Franz, A. K. 2019. Chapter 19: Producing oleaginous microorganisms using wastewater – methods and guidelines for lab and industrial scale production. in: *Microbial Lipid Production – Methods and protocol*, (Ed.) Balan, V., Humana Press. <https://doi.org/10.1007/978-1-4939-9484-7_19>.
3. Chen, Y., **Barzee, T. J.**, Zhang, R., Pan, Z. 2019. Chapter 9: Citrus. In: *Integrated Processing Technologies for Food and Agricultural By-Products*, (Eds.) Pan, Z., Zhang, R., Zicari, S., Academic Press. <https://doi.org/10.1016/B978-0-12-814138-0.00009-5>.

## Reports

1. Nielsen, I., El-Mashad, H., Yonkoski, J., Graff, K., Smith, M., **Barzee, T.**, Zhang, R. 2024. Demonstration of a Mobile Digestate Processing System to Maximize Food Waste Diversion and Create Valuable Biofertilizer Products. *Final Research Report to the US Environmental Protection Agency*.
2. Zhang, R., El-Mashad, H., Jenkins, B., Westphal, A., **Barzee, T.**, Edalati, A., Eberlein, C. 2021. Recycling Nut and Other Organic Waste on Farms for Sustainable Nutrient Management and Nematode Control. *Final Research Report to the California Department of Food and Agriculture*.
3. Zhang, R., El-Mashad, H., **Barzee, T.**, Cao, L. 2020. Production of Antioxidants and Fungal Biomass as Poultry Feed from Almond Hulls. *Final Research Report to the Almond Board of California*.
4. Franz, A. K., Zhang, R., Yothers, C. W., **Barzee, T. J.**, Kendall, A., Pan, Z., Rapport, J. L., Zhang, Y., Ro, J. W., El-Mashad, H., Rude, K., Liang, K. J., Chio, A., Chen, Y., Edalati, A. 2020. Improving Microalgae Feedstock for Biofuel Production Using CO2 and Waste Nutrients from Anaerobic Digesters. *Final Research Report to the California Energy Commission*.
5. Zhang, R., El-Mashad, H., Edalati, A., Chen, Y., **Barzee, T.**, Lin, X.J., Kaffka, S., Campbell, M. 2019. Effect of Solid Separation on Mitigation of Methane Emission in Dairy Manure Lagoons. *Final Research Report to the California Department of Food and Agriculture*.
6. Zhang, R., Scow, K., El-Mashad, H., Edalati, A., **Barzee, T.**, Wang, D., Rapport, J. 2017. Producing Valuable Co-Products and Improving Nutrient Management for Dairy Manure Digester Systems. *Final Report to the California Department of Food and Agriculture*.
7. Kaffka, S., **Barzee, T.**, El-Mashad, H., Williams, R., Zicari, S., Zhang, R. 2016. Evaluation of Dairy Manure Management Practices for Greenhouse Gas Emissions Mitigation in California. *Final Technical Report to the State of California Air Resources Board*. <https://ucdavis.app.box.com/s/d019lhna6od1m220niued12i2hlui3d4>

## Conference Papers

1. **Barzee, T.**, Zhang, R., Edalati, A., Rapport, J., El-Mashad, H. 2015. Sustainable Bio-Fertilizer Production from Anaerobically Digested Organic Wastes. *American Society of Agricultural and Biological Engineers (ASABE) Annual International Conference*, New Orleans, LA. (Paper #152190937).
2. **Barzee, T.**, Holbert, K., Johnson, J., Kross, C., Storm, J. 2012. Influence of Microhabitat on the Abundance of White-Footed Mice (*Peromyscus leucopus*) in Urban Greenways. *USC Upstate Undergraduate Research Journal*, 5, 89-90.

<http://events.uscupstate.edu/SARS/2012ResearchSymposium/page_90.html>.

1. Dolewski, R., Modarres, A., Holbert, K., **Barzee, T.**, Ferris, R., Baker, J., Williams, A., Storm, M., Storm, J.J. 2012. Small Mammal Community Structure in Urban Greenways. *USC Upstate Undergraduate Research Journal,* 5, 92-94.

<http://events.uscupstate.edu/SARS/2012ResearchSymposium/page_92.html>.

## Magazine Articles

1. **Barzee, T.** 2021. California/Nevada Section Student Rally, The Second Annual… and First Virtual. *Resource Magazine* 28(4): 24-24. <https://asabe.org/Portals/0/aPubs/Resource/PDF/Resource28-03MayJun2021.pdf>.

## Patents

1. **Barzee, T.**, Annamalai, R., 2024. A Bottom-Up Approach for Sustainable Cultivated Meat Production. Provisional Patent Application No. 63/554,639.
2. Zhang, R., Cao, L., **Barzee, T.**, Pan, Z. 2020. Edible Mycoprotein Pellets. Patent Application No. US 20204/0090555A1.
3. Zhang, R., **Barzee, T.** 2018. Clarifying Water and Wastewater with Fungal Treatment/Bioflocculation. PCT/US2017/042453. https://patents.google.com/patent/WO2018014037.

# Presentations

## Invited Speaker Presentations

1. **Barzee, T.** 2025. Bourbon Shrooms and Pure Mycelium Materials. Presented to Jim Beam Global Liquid Quality on 7/17/25. Lexington, KY.
2. **Barzee, T.**, Byrd, Z. 2025. Bourbon Shrooms. Presented to Heaven Hill Sustainability Lunch and Learn Seminar Series on 6/26/25. Louisville, KY.
3. Lin, B., LeVaughn, J., Berron, B., **Barzee, T.** 2025. Lab and Pilot-Scale Process Development for Production of Kasu-Tori Shochu Through University-Industry Collaboration. Presented to American Craft Sake Festival on 4/12/25. Hot Springs, AR.
4. Sarhan, R. **Barzee, T.** 2025. ROC Reuse and Bourbon: A Case Study on Water Chemistry’s Impact on Fermentation and Congener Profiles. Presented to Kentucky Distiller’s Association on 4/2/25. Louisville, KY.
5. **Barzee, T.** 2025. Engineering Biological Systems to Produce Cell-Cultivated Foods and Materials. Presented to the UK Chemical and Materials Engineering Seminar Series on 2/12/25.
6. **Barzee, T.** 2025. Beyond Mushrooms: Filamentous Fungi for Future Foods and Materials. Presented to the UK Mycology Club on 1/24/25.
7. **Barzee, T.** 2024. Harnessing Fungi and Microalgae in Cell-Cultivated Foods and Materials. Presented to the Michigan State University Department of Biosystems and Agricultural Engineering Seminar Series on 11/12/24.
8. **Barzee, T.** Roy, K. R., Byrd, Z. 2024.Valorization of Bourbon Stillage through Production of Tunable Pure Mycelium Materials. Presented to the Frontiers in Biorefining Chemicals and Products from Renewable Carbon 2024 International Conference in St. Simons Island, GA on 10/2/24.
9. **Barzee, T.** Roy, K. R., Byrd, Z. 2024.Fungi for Future Materials: Circular Production of Pure Mycelium Materials. Presented to the 28th Annual Meeting of the Institute of Biological Engineering in Atlanta, GA on 9/14/24.
10. **Barzee, T.** Byrd, Z. 2024. Bourbon Shrooms: Where We Are Now. University of Kentucky Von Allmen Center for Entrepreneurship. Presented in the Bootcamp Accelerator Seminar Series on 10/8/24. <https://youtu.be/V8adqPCbx0I?si=3bRFTb0bOa4LRW4E>
11. **Barzee, T.** 2024. The Future Role of Biosystems and Agricultural Engineers in Cellular Agriculture. Presentation and Panelist during 2024 ASABE AIM in Anaheim, CA on 7/30/24.
12. **Barzee, T.** 2024. Tips for Success in Grant Funding. Presentation and Panelist in USDA-NIFA sponsored session during 2024 ASABE AIM in Anaheim, CA on 7/29/24.
13. **Barzee, T.,** Adedeji, A., Schendel, R., Talukdar, S., Oloyede, A. 2024. Development of Novel and Sustainable Cell-Cultivated Foods Through Additive Biomanufacturing. Oral and poster presentations presented to the USDA NIFA A1364 Program Director’s Meeting in Amherst, MA on 6/17-18/24.
14. **Barzee, T.**, Annamalai, R. 2024. A Bottom-up Approach for Sustainable Cultivated Meat Production. Presented to the UK IRC Seminar Series on 2/16/24.
15. **Barzee, T.** 2024. Sustainable Bioprocess Engineering: Microbes for the Circular Bioeconomy. Presented to Clemson University Environmental Engineering and Earth Sciences Seminar Series on 2/8/24.
16. **Barzee, T.**, Seales, W., Cagle, L. 2024. Herculaneum Scrolls, Kentucky Oral Histories on Climate Change, and Bourbon Shrooms.Presented to Inaugural Research Breakthrough Series by the UK Vice President for Research Lunch and Learn Series on 2/7/24.
17. **Barzee, T.** 2023. Anaerobic Digestion of Food and Agriculture Byproducts for Renewable Natural Gas: Trends and Opportunities. Keynote Presentation at the 2023 UK Food Energy Water Nexus Symposium on 12/7/23.
18. **Barzee, T.** 2023. Utilization of Filamentous Fungi for Sustainable Bioproducts and Bioprocesses. Presented to Auburn University Biosystems Engineering Department Seminar Series on 11/30/23.
19. **Barzee, T.** 2023. Food Waste, Upcycling, and Life Cycle Assessment of Food Systems. Presented to University of Tennessee Knoxville Food Systems: Farm to Table Lecture Series on 11/15/23.
20. **Barzee, T.** 2023. Life Cycle Assessment of Food Systems: Anaerobic Digestion, Food Waste, Methane, and Upcycling. Presented to the Korea University 2023 Sustainable Living Systems Lecture Series on 9/27/23.
21. **Barzee, T.** 2023. Bioprocessing of Kentucky Bourbon Stillage to Culinary Mushrooms and Renewable Natural Gas. Presented to the ASABE Annual International Meeting Invited Session on Engineering Perspectives of Circular Bioeconomy in Food and Bioenergy Systems on 7/12/23.
22. **Barzee, T.**, Shi, J. 2023. Finding Common Ground in Upgrading Ag Process Byproducts: From Renewable Battery Materials to Stillage Mushrooms. Presented to the 45th Annual Symposium on Biomaterials, Fuels, and Chemicals on 5/1/23.
23. **Barzee, T.** 2022. Producing Bourbon in Kentucky. Presented to the ASABE Member Hour Producer Series on 12/15/22. <https://youtu.be/arml5g5aWDg>
24. **Barzee, T.** 2022. Producing Fungi-Based Foods: Alternative Proteins and Beyond. Presented to The Good Food Institute’s Science of Alt Protein Seminar Series on 7/28/22. <https://youtu.be/QWgZ6_ycvb0>
25. **Barzee, T.**, Sarhan, R., Loeb, J. 2022. Water Conservation in Kentucky Bourbon Distilleries: Impacts of Recycling Process Water on Yeast Fermentation Performance. Presented to Kentucky Distiller’s Association on 6/14/22. Lexington, KY.
26. **Barzee, T.** 2022. Cultivating Organizations and Careers as a Young Professional. Presented to UK BAE Graduate League of Students on 2/10/22. Lexington, KY.
27. **Barzee, T.** 2022. Anaerobic Digestate Biofertilizers: Production, Crop Performance, and Economics. Oral, Kentucky Fruit and Vegetable Conference. 1/3/22. Bowling Green, KY.
28. **Barzee, T.** 2021. Bioprocess and Fermentation Lab. Presented to UK BAE Student Branch on 10/13/21. Lexington, KY.
29. **Barzee, T.** 2021. Lab Safety: Perspectives and Learnings from Another BAE Department. Presented to University of Kentucky Biosystems and Agricultural Engineering Seminar Series on 9/24/21. Lexington, KY.
30. **Barzee, T.** 2020. Integrating Biology with Engineering to Support Humanity and the Planet. Presented to Clemson University Biosystems Engineering Newman Seminar Series on 9/25/20. Clemson, SC.
31. **Barzee, T.** 2020. Processing and Utilization of Anaerobic Digestate as Biofertilizer for Production of Crops and Microalgae. Presented to UC Davis Biological and Agricultural Engineering Seminar on 3/16/20. Davis, CA.
32. **Barzee, T.** 2019. Sustainable Utilization of Organic Wastes and Carbon Neutrality Initiative. Presented to Clemson University Biosystems Engineering Newman Seminar Series on 9/20/19. Clemson, SC.
33. Zhang, R., **Barzee, T.** 2019. Anaerobic Digestion Technology Applications on Earth and Mars for Waste Conversion and Recycling. Presented to NASA CUBES on 4/16/19. Davis, CA.
34. **Barzee, T.**, Pereira, R. 2018. Carbon Neutrality at the Intersection of the University and Animal Agriculture. Presented to UC Davis Veterinary Medicine One Health Seminar Series on 2/22/18. Davis, CA.
35. **Barzee, T.** 2018. Research in Biosystems Engineering: Sustainable Utilization of Organic Wastes. Presented to Clemson University Biosystems Engineering Newman Seminar Series on 1/26/18. Clemson, SC.
36. **Barzee, T.** 2017. Introduction to Tyler Barzee’s Research. Presented to Tokyo University of Agriculture and Technology on 3/29/17. Tokyo, JP.
37. **Barzee, T.** 2017. Biosystems Engineering Problem Solving and Sustainable Utilization of Organic Wastes. Presented to Clemson University Biosystems Engineering Newman Seminar Series on 2/3/17. Clemson, SC.
38. **Barzee, T.** 2016. Education in the United States. Presented to Hunan University Delegation on 11/30/16. Davis, CA.
39. **Barzee, T.** 2016. Biosystems Engineering Problem Solving and Sustainable Utilization of Organic Wastes. Presented to Clemson University Biosystems Engineering Newman Seminar Series on 1/15/16. Clemson, SC.

## Invited Panelist

1. **Barzee, T.** 2025. Why and How to Effectively Engage with Industry and Discuss Your Science to Advance Research. Panelist during 2025 UK VPR Lunch and Learn Series on 2/26/25.
2. **Barzee, T.** 2024. What I Wish I Knew Faculty Panel. Panelist during 2024 UK MG-CAFE Lunch and New Faculty Learning Series on 12/12/24.
3. **Barzee, T.** 2024. The Future Role of Biosystems and Agricultural Engineers in Cellular Agriculture. Panelist during 2024 ASABE AIM in Anaheim, CA on 7/30/24.
4. **Barzee, T.** 2024. Tips for Success in Grant Funding. Panelist in USDA-NIFA sponsored session during 2024 ASABE AIM in Anaheim, CA on 7/29/24.
5. **Barzee, T.**, Mena-Govela, Y., Jabusch, L. 2023. UC Davis BAE Graduate Career Panel. Davis, CA. 5/23/2023.

## Conference Oral Presentations

1. Islas, Y. C., Joyce-Welsko, G., Baldridge, K., Berron, B., Crofcheck, C., **Barzee, T.** 2025. Life Cycle Assessment of Craft Scale Bourbon Production. American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting (AIM). Toronto, ON. 7/16/2025.
2. Sarhan, R. Berron, B., Joyce-Welsko, G., **Barzee, T.** 2025. Evaluating the Impact of Recycled High-Osmotic Strength Water on Sustainability in Spirit Distilleries. Oral, ASABE AIM. Toronto, ON. 7/15/2025.
3. Roy, K. R., Sarhan, R., Talukdar, S., **Barzee, T.** 2025. Mycillage. Oral and Written Pitch Competition for Bioprocess Startups at 2025 ASABE AIM. Toronto, ON 7/15/25. **1st Place Winner.** Barzee: Faculty Project Mentor.
4. **Barzee, T.**, Edalati, A., Nielsen, I., Chio, A., Chen, Y., El-Mashad, H., Zhang, R. 2025. Case Study: Recycling Dairy Manure Solids into Pelletized Products. Oral, ASABE AIM. Toronto, ON. 7/14/2025.
5. Sarhan, R. Berron, B., Joyce-Welsko, G., **Barzee, T.** 2025. Bourbon Fermentations Using Reverse Osmosis Concentrate at the James B. Beam Institute Distillery. Oral, Annual James B. Beam Institute Industry Conference. Lexington, KY 3/19/2025.

1. Islas, Y. C., Berron, B., Crofcheck, C., **Barzee, T.** 2025. Effect of Yeast and Bacterial Congener Formation in Bourbon Sweet and Sour Mash Fermentation. Oral, Annual James B. Beam Institute Industry Conference. Lexington, KY 3/17/2025.
2. Islas, Y. C., Berron, B., Crofcheck, C., **Barzee, T.** 2024. Influence of Lactic Acid Bacteria on Sour Mash Bourbon Fermentations. Oral, ASABE AIM. Anaheim, CA 7/31/24.
3. Talukdar, S., **Barzee, T.** 2024. Co-Immobilization of Microalgae and Bacteria with Filamentous Fungi: Mechanistic Insights and New Applications. Oral, ASABE AIM. Anaheim, CA 7/31/24.
4. Talukdar, S., Islas, Y. C., Roy, K. R., Sarhan, R., **Barzee, T.** 2024. MyceColors. Oral and Written Pitch Competition for Bioprocess Startups at 2024 ASABE AIM. Anaheim, CA 7/30/24. **3rd Place Winner.** Barzee: Faculty Project Mentor.

1. Talukdar, S., **Barzee, T.** 2024. Fungal-Assisted Immobilization of Microalgae for Customizable Bioproducts: A Modeling Approach. Oral, International Conference on Algal Biomass, Biofuels, and Bioproducts. Clearwater Beach, FL 6/10/24.
2. **Barzee, T.** 2024. Sustainable Bourbon Shrooms: Valorization of Distillers Spent Grains Through the Cultivation of Edible Gourmet Mushrooms. Oral, Annual James B. Beam Institute Industry Conference. Lexington, KY 3/13/2024.
3. Bradbury, A., Chwatko, M., Ingram, E., **Barzee, T.** 2023. Purification of Lactic Acid with Ultrafiltration Membranes. Poster, AIChE Annual Meeting, Orlando, FL. 11/6/2023.
4. Doyle, L., **Barzee, T.** 2023. Production of Mycoprotein Hydrogels for 3D Bioprinting and Cellular Agriculture. Oral (Lightning Talk), ASABE AIM. Omaha, NE. 7/12/2023.
5. Talukdar, S., **Barzee, T.** 2023. Mathematical Modeling of the Fungal Assisted Immobilization of Microalgae Cells: Impact of Fungal Activity State and Bioreactor Operational Parameters. Oral, ASABE AIM. Omaha, NE. 7/10/2023.
6. Edalati, A., Chio, A., Nielsen, I., El-Mashad, H., Chen, Y., Nia, K. S., **Barzee, T.**, Khalsa, S. D. S., Zhang, R. 2023. Production and Application of Compost Products from Dairy Manure and Almond Waste as Soil Amendment on California Almond Orchards. Oral (Lightning Talk), ASABE AIM. Omaha, NE. 7/11/2023.
7. Edalati, A., Chio, A., Nielsen, I., El-Mashad, H., Chen, Y., Nia, K. S., **Barzee, T.**, Zhang, R. 2023. The Impact of an Advanced, Multistage Solid-Liquid Separator System with Centrifuge on Manure Management and Methane Emissions on a California Dairy. Oral (Lightning Talk), ASABE AIM. Omaha, NE. 7/11/2023.
8. **Barzee, T.** 2023. Assessing Sustainability in Food Systems. Oral, Institute of Food Technologists (IFT) FIRST Annual Event and Expo. Chicago, IL. 5/11/2023
9. Sarhan, R., Henley, H., Berron, B., **Barzee, T.**, 2023. An Innovative Water Reuse Strategy: Laboratory Studies on Potential Reuse of Reverse Osmosis Concentrate. Oral, Annual James B. Beam Institute Industry Conference. Lexington, KY. 3/15/2023.
10. Chio, A., **Barzee, T.**, Cao, L., Zhang, R. 2022. Bioflocculation of Heterotrophically Produced Microalgae *Chlorella sorokiniana* using Filamentous Fungi *Aspergillus awamori*. Oral, ASABE AIM. Houston, TX. 7/18/2022.
11. Cao, L., El Mashad, H., **Barzee, T.**, Pan, Z., Zhang, R. 2022. Production of Fungal Biomass (*Aspergillus awamori*) from Almond Hulls for Food Applications. Oral, ASABE AIM. Houston, TX. 7/18/2022.
12. Edalati, A., Chen, Y., **Barzee, T.**, El Mashad, H., Khalsa, S. D., Pandey, P., Brown, P., Zhang, R. 2022. Production and Application of Compost Products from Dairy Manure and Almond Waste as Soil Amendment on California Almond Orchards. Oral, ASABE AIM. Houston, TX. 7/19/2022.
13. Edalati, A., Chen, Y., Chio, A., **Barzee, T.**, El Mashad, H., Zhang, R. 2022. Evaluation of an Advanced System for Manure Solids Separation for Compost Production on Dairies. Oral, ASABE AIM. Houston, TX. 7/19/2022.
14. **Barzee, T.** 2021. Biofertilizer Economics and Environmental Impact. Oral, 16th Annual California Bioresources Alliance Symposium.
15. Chio, A., **Barzee, T.**, Zhang, R. 2021. Heterotrophic Production of Microalgae *Chlorella sorokiniana* Using Hydrolyzed Lactose as Substrate. Oral, ASABE AIM. **Placed in Student Oral/Poster Presentation Competition.**
16. Chio, A., **Barzee, T.**, Zhang, R. 2020. Heterotrophic Production of Microalgae *Chlorella sorokiniana* Using Hydrolyzed Lactose as Substrate. Oral, ASABE AIM.
17. Cao, L., **Barzee, T.**, El-Mashad, H., Chen, Y., Pan, Z., Zhang, R. 2020. Production of Antioxidants and Fungal Biomass from Almond Hulls for Food and Feed Applications. Oral, ASABE AIM.
18. Chen, Y., **Barzee, T.**, El-Mashad, H., Khalsa, S. D., Brown, P., Zhang, R., Edalati, A. 2020. Production and Application of Pelletized Compost Products from Dairy Manure and Woody Biomass on California Almond Orchards. Oral, ASABE AIM.
19. **Barzee, T.**, Edalati, A., El-Mashad, H., Jenkins, B., Rapport, J., Zhang, R. 2019. Economic Analysis of Producing Solid and Liquid Biofertilizers from Anaerobic Digestates. Oral, ASABE AIM, Boston, MA.
20. Chio, A., **Barzee, T.**, Cao, L., Zhang, R. 2019. Heterotrophic Growth of Algae for Animal Feed Application. Oral, ASABE AIM, Boston, MA.
21. Cao, L., **Barzee, T.**, El-Mashad, H., Chen, Y., Pan, Z., Zhang, R. 2019. Production of Fungal Biomass from Almond Hulls for Animal Feed Application. Oral, ASABE AIM, Boston, MA.
22. Liang, K. J., El-Mashad, H., **Barzee, T.**, Chen, C., Pan, Z., Zhang, R. 2019. Drying of Microalgae with Infrared Radiation. Oral, ASABE AIM, Boston, MA.
23. Edalati, A., Chen, Y., El-Mashad, H., **Barzee, T.**, Lin, X., Zicari, S., Zhang, R. 2019. The Impact of Mechanical Solid-Liquid Separators on the Mitigation of Methane Emissions from Dairy Manure Lagoons in California. Oral, ASABE AIM, Boston, MA.
24. Edalati, A., Chen, Y., El-Mashad, H., **Barzee, T.**, Lin, X., Zicari, S., Zhang, R. 2019. The Impact of a Unique, Advanced Multistage Solid-Liquid Separator System on the Mitigation of Methane Emissions from a Dairy Manure Lagoon in California. Oral, ASABE AIM, Boston, MA.
25. Chen, Y., Edalati, A., **Barzee, T.**, El-Mashad, H. M., Zhang, R. 2019. Economic Analysis of Solid Separation Technologies on California Dairy Farms. Oral, ASABE AIM, Boston, MA.
26. Chen, Y., Edalati, A., **Barzee, T.**, El-Mashad, H. M., Zhang, R. 2019. Particle Size Distribution and Effect of Solid Removal on Biomethane Potential Reduction of Flushed Dairy Manure. Oral, ASABE AIM, Boston, MA.
27. **Barzee, T**., Yothers, C., Chio, A., Edalati, A., El-Mashad, H., Franz, A., Zhang, R. 2018. Microalgae Cultivation, Harvest, and Water Recycling Using Processed Anaerobic Digestate as Feedstock. Oral, ASABE AIM, Detroit, MI.
28. Chen, Y., Edalati, A., **Barzee, T.**, Lin, X., El-Mashad, H. M., Zhang, R. 2018. Particle Size Distribution and Effect of Solid Removal on Biomethane Potential Reduction of Flushed Dairy Manure. Oral, ASABE AIM, Detroit, MI. **Sixth Place in NRES Student Competition.**
29. Edalati, A., Chen, Y., El-Mashad, H., Lin, X., **Barzee, T.**, Zicari, S., Zhang, R. 2018. Effect of Solid Manure Separation on Mitigation of Methane Emissions from Dairy Lagoons. Oral, ASABE AIM, Detroit, MI.
30. **Barzee, T.**, Zhang, R., El-Mashad, H. 2017. Fungal-Assisted Harvesting of Algae and Bacteria. Oral, ASABE AIM, Spokane, WA.
31. **Barzee, T.**, Edalati, A., El-Mashad, H., Rapport, J., Scow, K., Zhang, R. 2017. Liquid Biofertilizer Production from Anaerobic Digestate for Growing Tomatoes. Oral, ASABE AIM, Spokane, WA.
32. Edalati, A., **Barzee, T.**, El-Mashad, H., Rapport, J., Scow, K., Zhang, R. 2017. Solid Pelletized Biofertilizer Production from Anaerobic Digestate for Growing Corn. Oral, ASABE AIM, Spokane, WA.
33. Ambrose, H., **Barzee, T.**, Maroney, E., Raymond, A. 2017. Life Cycle Sustainability Assessment for Advanced Transit Buses. Oral, 25th Annual Conference of the International Symposium on Sustainable Systems and Technology, Chicago, IL.
34. **Barzee, T.**, Zhang, R., Fan, Z., El-Mashad, H. 2016. Ammonia Fungi Pelletization of Microalgae for Treatment of High Strength Wastewater. Oral, ASABE AIM, Orlando, FL.
35. Zicari, S., Williams, R., El-Mashad, H., **Barzee, T.**, Zhang, R., Kaffka, S. 2016. Evaluation of Dairy Manure Management Practices for Greenhouse Gas Emissions Mitigation in California. Oral, ASABE AIM, Orlando, FL.
36. **Barzee, T.**, Zhang, R., Edalati, A., El-Mashad, H., Rapport, J., Adams, C. 2015. Sustainable Biofertilizer Production from Anaerobically Digested Organic Wastes. Oral, ASABE AIM, New Orleans, LA.

## Conference Poster Presentations

1. Roy, K. R., Byrd, Z., Sama, M. P., **Barzee, T.** 2025. Upcycling Bourbon Byproducts into Pure Mycelium Materials Using *Rhizopus oligosporus*. Poster, S-1075 The Science and Engineering for a Biobased Industry and Economy Annual Meeting. Fargo, ND. 7/10/25. **Winner of graduate student poster competition.**
2. Talukdar, S., Alolaywi, H., Roy, K. R., Cheng, Y. T., **Barzee, T.** 2025. Evaluation of Filamentous Fungi as a Biobased Binder for Lithium-ion Batteries. Poster, S-1075 The Science and Engineering for a Biobased Industry and Economy Annual Meeting. Fargo, ND. 7/10/25
3. Akter, S. S., Zhang, Y., Shi, J., **Barzee, T.** 2025. Fate of PET Microplastics in Solid and Liquid Phases of Filamentous Fungi Fermentations. Poster, S-1075 The Science and Engineering for a Biobased Industry and Economy Annual Meeting. Fargo, ND. 7/10/25
4. Islas, Y. C., Joyce, G., Baldridge, K., Crofcheck, C., Berron, B., **Barzee, T.** 2025. Life Cycle Assessment of Craft Scale Bourbon Production. Poster, S-1075 The Science and Engineering for a Biobased Industry and Economy Annual Meeting. Fargo, ND. 7/10/25
5. Doyle, L., Xiong, Y., **Barzee, T.** 2024. Development of Fungal Hydrogels for 3D Bioprinting and Cellular Agriculture. Poster, ASABE AIM. Anaheim, CA. 7/30/24.
6. Olanrewaju, T., **Barzee, T.**, Schendel, R., Adedeji, A. A. Techno-economic Analysis and Environmental Impact Assessment of Expanded Cereals Made from Corn Flour and Spent Grain from Bourbon Production. Poster, ASABE AIM. Anaheim, CA. 7/30/24.
7. Sarhan, R., Crofcheck, C., Berron, B., **Barzee, T.** 2024. Optimizing a Lab-Scale Protocol for Bourbon Whiskey Fermentations: Comparison of Simultaneous Saccharification and Fermentation and Traditional Mashing Methods. Poster, ASABE AIM. Anaheim, CA. 7/30/24.
8. Roy, K. R., Byrd, Z., **Barzee, T.** 2024. Production of Pure Mycelium Materials with Bourbon Stillage as Substrate. Poster, ASABE AIM. Anaheim, CA. 7/30/24.
9. Talukdar, S., **Barzee, T.** 2024. Transforming Bourbon Thin Stillage into Valuable Fungal Pellets for Effective Stillage Treatment and Resource Recovery. Poster, ASABE AIM. Anaheim, CA. 7/28/24.
10. Islas, Y. C., **Barzee, T.** 2024. Impacts of Bourbon traditional sour mashing on spirit fermentations with *Saccharomyces cerevisiae*. Poster, Institute of Food Technologists (IFT) FIRST Annual Event and Expo. Chicago, IL. 7/15/24.
11. Byrd, Z., Bokros, N., Verges, V., DeBolt, S., **Barzee, T.** 2023.Sustainable Bourbon Shrooms: Valorization of Kentucky Distillers Spent Grains Through the Cultivation of Edible Gourmet Mushrooms. Poster, ASABE AIM. Omaha, NE. 7/11/2023
12. Sarhan, R., Henley, R., Berron, B., **Barzee, T.** 2023. A Novel Approach to Water Reuse: Investigating the Feasibility of Utilizing Reverse Osmosis Concentrate in the Distillery Process. Poster, ASABE AIM. Omaha, NE. 7/9/2023.
13. Hockensmith, D., **Barzee, T.**, Crofcheck, C. 2023. Anaerobic Digestion of Stillage: Comparison of the Biomethane Potential Based on Mash Bill and Distillation Parameters. Poster, ASABE AIM. Omaha, NE. 7/11/2023.
14. **Barzee, T.**, Byrd, Z., Bokros, N., Verges, V., DeBolt, S. 2023.Sustainable Bourbon Shrooms: Valorization of Kentucky Distillers Spent Grains Through the Cultivation of Edible Gourmet Mushrooms. Poster, Annual James B Beam Institute Industry Conference. Lexington, KY. 3/14-15/2023.
15. Talukdar, S., **Barzee, T.** 2022. Fungal-Assisted Harvesting of Microalgae: Optimization of Fungal Pellet Loading and Geometry. Poster, ASABE Annual International Meeting. Houston, TX. 7/18/2022.
16. Hockensmith, D., Crofcheck, C., **Barzee, T.** 2022. Impact of Physiochemical Characteristics and Distillation Parameters on the Biomethane Potential of Bourbon Stillage. Poster, ASABE Annual International Meeting. Houston, TX. 7/18/2022.

1. Cao, L., **Barzee, T. J.**, Pan, Z., Zhang, R. 2022. Production of Mycoprotein Food from Agricultural By-Products. Poster, Institute of Food Technologists (IFT) Annual Meeting and Expo. 7/10/2022.
2. Sarhan, R., Loeb, J., **Barzee, T.** 2022. Water Conservation in Kentucky Bourbon Distilleries: Impacts of Recycling Process Water on Yeast Fermentation Performance. Poster, UK Showcase of Undergraduate Scholars. Lexington, KY. 4/26/2022.
3. Zhang, R., Cao, L., El-Mashad, H., **Barzee, T.**, Pan, Z. 2021. Transforming Almond Hulls into High Value Food and Feed Products. Virtual Slides, USDA Food Loss and Waste Innovation Virtual Fair.
4. Chio, A., Edalati, A., Chen, Y., **Barzee, T.**, El-Mashad, H., Zhang, R. 2021. Production and Application of Compost Products from Dairy Manure for Improving Health and Fertility of Almond Orchard Soils. Poster, ASABE CA/NV Virtual Meeting. **Fourth place in graduate student competition.**
5. Edalati, A., Chen, Y., El-Mashad, H., Lin, X., **Barzee, T.**, Zicari, S., Kaffka, S., Campbell, M., Zhang, R. 2020. Effect of Solid-Liquid Separation on the Mitigation of Methane Emissions from Dairy Manure Lagoons. California Dairy Sustainability Summit.
6. Cao, L., **Barzee, T.**, El-Mashad, H., Chen, Y., Pan, Z., Zhang, R. 2019. Production of Antioxidants and Fungal Biomass from Almond Hulls for Food and Feed Applications. Poster, The Almond Conference, Sacramento, CA.
7. Edalati, A., Chen, Y., El-Mashad, H., **Barzee, T.**, Lin, X., Zicari, S., Kaffka, S., Campbell, M., Zhang, R. 2019. The Impact of a Weeping Wall on the Mitigation of Methane Emissions from a Dairy Manure Lagoon in CA. Poster, ASABE AIM. Boston, MA.
8. **Barzee, T.**, Yothers, C., Edalati, A., Rapport, J., El-Mashad, H., Franz, A., Zhang, R. 2017. Microalgae Cultivation on Processed Anaerobic Digestates. Poster, California Bioresources Alliance (CBA) 12th Annual Symposium on Building California’s Sustainable Bioresource Economy, Sacramento, CA.
9. **Barzee, T.**, Edalati, A., El-Mashad, H., Zhang, R. 2017. Sustainable Bio-Fertilizer from Anaerobically Digested Organic Wastes. Poster, CBA 12th Annual Symposium on Building California’s Sustainable Bioresource Economy, Sacramento, CA.
10. **Barzee, T.**, Edalati, A., El-Mashad, H., Zhang, R. 2017. Microalgae Cultivation on Processed Anaerobic Digestates. Poster, ASABE Annual International Conference, Spokane, WA.
11. **Barzee, T.**, Edalati, H., Bala, A., Garrett, T., Zhang, R. 2016 Sustainable Bio-Fertilizer from Anaerobically Digested Animal Manure. Poster, US Engineering and Science Expo, EPA People Prosperity and Planet (P3), Washington DC.
12. Zicari, S., **Barzee, T.**, El-Mashad, H., Zhang, R., Williams, R., Kaffka, S. 2016. Preliminary evaluation of dairy manure management practices for greenhouse gas emissions mitigation in California. Poster, ASABE CA/NV Meeting, Tulare, CA. **First place in graduate student competition.**
13. **Barzee, T.**, Edalati, H., El-Mashad, H., Adams, C., Rapport, J., Molinos, B., Torbert, E., Scow, K., Zhang, R. 2016. High Value Fertilizer Products from Anaerobic Digestate. Poster, ASABE CA/NV Meeting, Tulare, CA. **Second place in graduate student competition.**
14. **Barzee, T.**, Huang, X., Reardon, K. 2013. Characterization of Lignin-Degrading Fungi from Rainforest Soil. Poster, Colorado Center for Biorefining and Biofuels Research Symposium, Boulder, CO.
15. **Barzee, T.**, Gao, B. 2012. Characterization and Potential Application of Biochars Produced by Microwave-Induced Pyrolysis. Poster, University of Florida Water Resources Research Symposium, Gainesville, FL.

## Presentations and Fact Sheets

1. **Barzee, T.**, Byrd, Z., Biodiesel Production Demonstration. University of Kentucky 4-H Teens Workshop. Presented on 6/14/24 and 6/12/23.
2. **Barzee, T.**, Bokros, N., Byrd, Z., Verges, V. 2022. Grow a Mushroom! Table Presentation. University of Kentucky Curiosity Fair. Presented 10/27/22.
3. El-Mashad, H., Edalati, A., **Barzee, T.**, Westphal, A., Eberlein, C., Jenkins, B., Zhang, R. 2021. Recycling Nut and Other Organic Waste on Farms for Sustainable Nutrient Management and Nematode Control. Fact Sheet. Distributed 8/31/21.
4. **Barzee, T.** 2021. Processing of Anaerobic Digestate for Enhanced Agricultural Applications. Presented at UC Waste Recycling and Healthy Soils Virtual Field Day. 7/21/21. Davis, CA.
5. Tours Led of the UC Davis Renewable Energy Anaerobic Digester (30 tours, 441 attendees, 2016-2021).

# Teaching

## Courses Taught

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Position** | **Term** | **Course Number** | **Title** | **# of Students** | **Course Qualitya** | **Teaching Qualitya** |
| Instructor | S ‘25 | BAE 506 | Life Cycle Assessment for Bioresource Engineering | 15 | 4.9 (4.2) | 4.9 (4.3) |
| S ‘24 | 9 | 4.9 (4.2) | 5.0 (4.3) |
| S ‘23 | 10 | 4.4 (4.1) | 4.6 (4.3) |
| Co-Instructor | F ‘24 | BAE 750 | Design and Analysis of Biosystems and Agricultural Engineering Experiments | 11 | 5.0 (4.2) | 5.0 (4.3) |
| F ‘23 | 14 | 4.5 (4.2) | 4.7 (4.3) |
| F ‘22 | 6 | -b | -b |
| Associate Instructor | F ‘19 | EBS 127 | Mass Transfer and Kinetics | 40 | 4.71 | 4.84 |
| TA | W ‘19 | EBS 130 | Modeling of Dynamic Processes in Biosystems | 34 | - | 4.46 |
| W ’18 | 20 | - | 4.91 |
| W ’17 | 30 | - | 4.77 |
| TA | F ‘18 | EBS 170 | Engineering Design and Professional Responsibilities | 20 | Not rated | Not rated |

a Scale: 1-5, College average in parenthesis

b Insufficient responses

## Guest Lectures

1. BAE 542: Biofuels and Bioproducts. Anaerobic Digestion. Instructors: Jian Shi and Czar Crofcheck. Presented 10/8/2024 and 9/25/2023.
2. PLS 302: Climate Change and Agriculture. Bioenergy, Climate Change, and Agriculture: Connections and Case Studies. Presented on 2/8/2022.
3. FRS 002: Alternative Protein. Fungal Fermentation and Mycoprotein Production. Instructor: David Block. Presented on 10/26/2021.
4. EBS 135: Bioenvironmental Engineering. Overview of California Dairy Manure Programs and Models. Instructor: Ruihong Zhang. Presented on 3/11/2021.
5. EBS 135: Bioenvironmental Engineering. California Dairy 101. Instructor: Ruihong Zhang. Presented on 3/8/2021.
6. EBS 135: Bioenvironmental Engineering. Processing and Utilization of Anaerobic Digestate as Biofertilizer for Production of Crops and Microalgae. Instructor: Ruihong Zhang. Presented on 3/4/2021.
7. EBS 135: Bioenvironmental Engineering. Solid-Liquid Separation Processes: Coagulation, Flocculation, and Sedimentation. Instructor: Ruihong Zhang. Presented on 1/27/2021.
8. EBS 135: Bioenvironmental Engineering. Thermal Environment Modeling and Biological Reaction Energetics. Instructor: Ruihong Zhang. Presented on 1/20/2021.
9. EBS 135: Bioenvironmental Engineering. Sampling and Sample Preservation. Instructor: Ruihong Zhang. Presented on 1/14/2021.
10. EBS 135: Bioenvironmental Engineering. Sustainability at the University of California. Instructor: Ruihong Zhang. Presented on 1/6/2021.
11. EBS 135: Bioenvironmental Engineering. Engineering for Sustainability and Life Cycle Assessment. Instructor: Ruihong Zhang. Presented on 1/6/2021.
12. EBS 200: Research Methods in Biological Systems Engineering. Data and Diagrams: How to Make Your Project Tell a Story. Instructor: Ruihong Zhang. Presented on 11/15/2020.
13. EBS 200: Research Methods in Biological Systems Engineering. Research Methods: Experimental Process and Design. Instructor: Ruihong Zhang. Presented on 10/28/2020.
14. EBS 200: Research Methods in Biological Systems Engineering. Research and Life Tips from a BAE Alum. Instructor: Ruihong Zhang. Presented on 10/5/2020.
15. EBS 200: Research Methods in Biological Systems Engineering. Research and Life Tips from a BAE Grad Student. Instructor: Ken Giles. Presented on 10/2/2019.
16. EBS 170: Engineering Design and Professional Responsibilities. Engineering Design: Evaluating Alternatives and Evaluating Success. Instructor: Ruihong Zhang. Presented on 11/7/2018.
17. EBS 245: Waste Management for Biological Production Systems. Biofertilizer Production from Anaerobic Digestate for Growing Crops and Microalgae. Instructor: Ruihong Zhang. Presented on 2/12/2018.

# Student Advising and Mentoring

## Graduate Student

### Advising (Completed)

1. Keya Roy (M.S.), BAE. 2025. Development of a Cultivation System for Producing Pure Mycelium Materials from Distillers’ Spent Grains. August 2023 to July 2025. Advisor.
2. Ryan Sarhan (M.S.), BAE. 2025. Impacts of Utilizing Reverse Osmosis Concentrate on Mashing, Fermentation, and Water Use in Bourbon Whiskey Production. November 2021 to July 2025. Advisor.
3. Lauren Doyle (M.S.), BAE. 2024. [Development of Fungal Hydrogels for 3D Bioprinting and Cellular Agriculture](https://doi.org/10.13023/etd.2024.266). August 2022 to July 2024. Advisor.
4. Suvro Talukdar (M.S.), BAE. 2023. [Microalgae Immobilization with Filamentous Fungi: Process Development for Sustainable Food Systems](https://uknowledge.uky.edu/bae_etds/100). August 2021 to May 2023. Advisor.
5. Danielle Hockensmith (M.S.), BAE. 2023. [Impact of Physicochemical Characteristics and Distillation Parameters on the Biomethane Potential of Bourbon Stillage](https://uknowledge.uky.edu/bae_etds/98). August 2021 to May 2023. Co-Advisor (Advisor: Czarena Crofcheck).

### Advising (In-Progress)

1. Victoria Holliday (M.S.), BAE. 2026. Improving the Stability of Anaerobic Digestion through Microbiome Insights and Bioaugmentation. August 2024 to May 2026. Advisor.
2. Syeda Akter (Ph.D), BAE. 2027. Cellular Agriculture and Mycoprotein Foods. August 2024 to May 2027. Advisor.
3. Suvro Talukdar (Ph.D.), BAE. 2026. Microalgae Immobilization with Filamentous Fungi: Process Development for Sustainable Food Systems. May 2023 to May 2026. Advisor.
4. Yosselin Castro Islas (Ph.D.), BAE. 2025. Influence of Sour Mashing in American Whiskey Production on Fermentation Performance and Product Quality. March 2023 to Present. Advisor.

### Graduate Student Research Committees (Excluding Own Students)

1. Cooper Samuleson (M.S.), Integrated Plant and Soil Science. Yeast Fermentations with 2025-2026.
2. Katherine Ristola (Ph.D.), Biosystems Engineering. 2024-2027.
3. Jason Stallings (Ph.D.). Chemical Engineering. Bioplastic Production. 2024 – Present.
4. Gary Lopez (Ph.D.). Biosystems Engineering. Sulfur Profiling of Pine. 2023 – Present.
5. Adewale Oloyede (M.S.). Biosystems Engineering. 2023 – Present.
6. Tosin Olanrewaju (M.S.). Biosystems Engineering. Upgrading Distillers’ Spent Grains. 2022 – 2024.
7. Katherine Ristola (M.S.). Biosystems Engineering. Stillage Treatment in Wetlands. 2023 – 2024.
8. Taohid Tuhser (Ph.D). Materials Science. 2023 – 2024. **Barzee:** Outside Examiner.

### Mentoring

1. Served as mentor to 2 BAE graduate students through the UC Davis BAE-GSA. 2018-2020.

## Undergraduate Student

### Research Mentoring

1. Olivia Smith (B.S.), UK Natural Resources and Environmental Science (NRES). May 2025 to Present. Production of Pure Mycelium Material Textile Prototypes.
2. Josephine Traver (B.E.), UK Chemical Engineering. May 2025 to Present. Cultivation and Optimization of Cell-Cultivated Foods. NSF REU Summer Student.
3. Allison Lundy (B.S.), UK Biosystems Engineering. May 2025 to Present. 3D Printing of Cell-Cultivated Foods. NSF REU Summer Student.
4. Benjamin Lin (B.S.), UK BAE, Agricultural and Medical Biotechnology, and Music Performance. May 2024 to Present. Saccharification and Fermentation of Sake Kasu into Distilled Shochu.
5. Evy Yates (B.S.), UK Agricultural and Medical Biotechnology. March 2024 to Present. Microbial Dynamics in Non-Alcoholic Beer: Assessing the Implications of Contamination from Retail Draft Lines.
6. Katherine Bell (B.S.), UK Biochemistry. January 2024 to Present. PHA Bioplastic Fermentations.
7. Andrew Meade (B.S), UK BAE. April 2023 to Present. Mycoprotein Fermentation and Bioprinting.
8. Andrew Snyder (B.S.), UK Chemical Engineering. January 2024 to May 2024. Effects of Yeast Pitching Rate to On-Grain Yeast Fermentation Performance.
9. Camden Jackson (B.S.), UK Chemical Engineering. January 2024 to May 2024. Autumn Berry Wine Fermentation.
10. Alexandra Bradbury (B.S.), Columbia University. May 2023 to August 2023. Purification of lactic acid from complex spent grain mixture to create poly(lactic acid). NSF REU Summer Student. Co-advised with Gosia Chwatko (Chemical Engineering).
11. Johnna Campbell (B.S.), UK BAE. May 2023 to August 2023. Water recycling impacts to yeast fermentation.
12. Victoria Holliday (B.S), University of Tennessee Martin. April 2023 to August 2023. Bourbon fermentation.
13. Kathleen Moore (B.S.), UK BAE. January 2022 to September 2024. Anaerobic Digestion of Bourbon Stillage.
14. Julia Loeb (B.S.), UK BAE. January 2022 to July 2024. Impacts of Recycling Process Water on Yeast Fermentation Performance (2022); and Effect of Static Magnetic Fields on Yeast Fermentation Performance (2023 to 2024).

### Senior Design Mentoring

1. BAE 402/403, UK Biosystems Engineering. Black Soldier Fly Processing System. 2025. 3 students. Faculty Advisor.
2. EBS 170, UC Davis Biological Systems Engineering. BioBoba: Designing a Mycoprotein Production System. 2021. 5 Students. Postdoctoral Advisor (Faculty Advisor: Ruihong Zhang).
3. EBS 170, UC Davis Biological Systems Engineering. Production System for Fungi and Algae Based (FAB) Burgers. 2020. 5 Students. Graduate Student Advisor (Faculty Advisor: Ruihong Zhang).
4. EBS 170, UC Davis Biological Systems Engineering. Production System for Fungi and Algae Based (FAB) Burgers. 2020. 5 Students. Graduate Student Advisor (Faculty Advisor: Ruihong Zhang).
5. ECH 161, UC Davis Chemical and Biochemical Engineering. PHB Production from Food Wastes Using Methanotrophs. 2019. 4 Students. Graduate Student Advisor (Faculty Advisors Karen McDonald and Somen Nandi).
6. EBS 170, UC Davis. Pilot Scale Algae Photobioreactor Utilizing Anaerobic Digester Feedstock. 2017. 4 Students. Graduate Student Advisor (Faculty Advisor: Ruihong Zhang).
7. EBS 170, UC Davis. EFF-FERT: Processing of Biodigester Effluent for Use as Fertilizer. 2015. 3 Students. Graduate Student Advisor (Faculty Advisor: Ruihong Zhang).

# Honors and Awards

1. Teaching Academic Standards, Technology, and Engineering Excellence Award ([TASTE-E](https://www.linkedin.com/posts/uky-baegls_the-taste-e-baegls-award-stands-forteaching-activity-7330974005077692416-dy1B?utm_source=share&utm_medium=member_desktop&rcm=ACoAABG2DU4BV6-Q5Mt5wrjR4L_AfwJpEP9aH2E)) from UK Biosystems and Agricultural Engineering Graduate League of Students (2025)
2. ASABE Superior Paper Award (2024)
3. Wethington Award (2024, 2023)
4. Nominated for Excellent Undergraduate Research Mentor Award (2022)

*Graduate Awards and Fellowship Funding (Total =* ***$118,682)***

1. UC Davis Campus Sustainability Award (2019)
2. William and Nongkarn Chancellor Graduate Fellowship (2018)
3. Carbon Neutrality Initiative Engagement Fellowship (2018, 2017, 2016)
4. Biological Systems Engineering Graduate Student Travel Award (2019, 2018, 2017)
5. Summer Graduate Student Researcher Award (2018, 2017)
6. Jastro Shields Fellowship (2018, 2017, 2015)
7. Bill Chancellor Centennial Travel Award (2016)
8. H. A. Lewin Family Fellowship (2016)
9. UCD and Humanities Graduate Research Award (2016)
10. First and Second Place Graduate Poster ASABE CA/NV Meeting (2016)
11. EPA P3 (People, Prosperity, Planet) Research Grant Award (2016)
12. Graduate Scholars Fellowship (2014)
13. George B. Nutt Award for Outstanding Biosystems Engineering Student (2014, 2013)
14. South Carolina Palmetto Fellows Scholarship (2010-2014)
15. Freshman Engineering and Science Scholarship (2010-2014)
16. Clemson Trustee Scholarship (2010-2014)
17. Coca-Cola iRecycle Fund Scholarship (2010)
18. President’s List (Fall and Spring 2013, Spring 2012)
19. Dean’s List (Spring 2014, Fall 2012, Fall and Spring 2011, and Fall 2010)

# Professional Organization Membership

1. American Society of Agricultural and Biological Engineers. 2012 – present.
2. American Water Works Association. 2014 – present.
3. American Chemical Society. 2020 – present.
4. Society of Industrial Microbiology and Biotechnology (SIMB) – 2023 - present

# Professional Development

## Research Professional Development

### Coursework

1. Grant Writers’ Seminars and Workshops. 2022. USDA Grant Development Workshop (12 hours).
2. UC Davis Cultivated Meat Consortium. 2022. Cultivated Meat Short Course (12 hours).
3. Grant Training Center. 2021. Professional Grant Development Workshop (16 hours).
4. Hort Americas. 2020. Hydroponics 101 – Growing Systems Online Short Course (6 hours).

### Participant

1. MathWorks. 2020. Machine Learning with MATLAB.
2. ACS Webinar Series. 2020. Project Management 101 for Scientists: How to Plan, Budget, and Meet Objectives.
3. UC Davis Office of Research and Grant Writers’ Seminars & Workshops, LLC. 2015. Write Winning Grant Proposals.

## Teaching and Mentoring Professional Development

### Participant

1. Authentic Assessments. 2025. UK Center for Enhancement of Learning and Teaching (CELT).
2. Better Practices in Student Peer Review. 2025. UK Center for Enhancement of Learning and Teaching (CELT).
3. Advocates and Allies Workshop. 2023. UK Engineering Faculty Training.
4. Mental Health and Wellness Workshop. 2022. UK Engineering Faculty Training.
5. UK Human Resources. 2022. Leading with Care Virtual Summit.
6. UC Davis Center for Educational Effectiveness. 2016. Beyond Grades: Assessment and Feedback for Student Learning.

## Business and Tech Transfer Professional Development

### Participant

1. UK Entrepreneurs Bootcamps 1.0 and 2.0. 2023-2024. Bourbon Shrooms. *Awarded $1,000 in Bootcamp 1.0 and awarded third place and $800 for Bootcamp 2.0.*
2. NSF I-Corps – Bay Area (CA) Node. 2021. BioBoba: Filamentous Fungi-Based Novel Textured Beverage Product. *Invited to National I-Corps Program*.
3. NSF I-Corps – Bay Area (CA) Node. 2020. Methane Busters: Microalgae-Based Feed Supplement for Reducing Enteric Methane Emissions from Cattle. *Invited to National I-Corps Program*.

# Service

## Grant Review

1. Connecticut Sea Grant College Program (CTSG). 2025
2. USDA NIFA. 2023 and 2024.
3. BARD – Binational Agricultural Research and Development Fund US-Israel. 2023
4. Singapore National Research Foundation. 2022
5. US National Science Foundation. 2022
6. Swiss National Science Foundation. 2022

## Journal Editorial Service

1. Review Editor, Frontiers in Sustainable Food Systems. 2023 – Present.
2. Guest Editor, Journal of Visual Experiments (JoVE). 2022. Methods for the Production, Characterization, and Evaluation of Cell-Cultivated Foods.

## Manuscript Review (number reviewed)

1. Journal of Environmental Management (29)
2. Algal Research (11)
3. Bioresource Technology (8)
4. Bioresource Technology Reports (4)
5. Agronomy (3)
6. Waste Management (2)
7. Environmental Science and Technology (2)
8. Trends in Food Science and Technology (1)
9. Global Change Biology Bioenergy (1)
10. Water Process Engineering (1)
11. ACS Sustainable Chemistry and Engineering (1)
12. Npj Science of Food (1)
13. Journal of the ASABE (1)
14. Current Opinion in Biotechnology (1)
15. Applied Engineering in Agriculture (1)
16. Resources, Conservation & Recycling (1)
17. Environmental Science and Technology (1)
18. Journal of Microencapsulation (1)
19. Journal of Soil Science and Plant Nutrition (1)
20. Sustainability (1)
21. Plants (1)
22. Horticulturae (1)
23. Mathematics (1)
24. Applied Sciences (1)
25. Industrial Biotechnology (1)
26. Arabian Journal of Geosciences (1)
27. Waste and Biomass Valorization (1)
28. Journal of Agriculture and Food Research (1)
29. University of Wisconsin Madison (1 Extension Fact Sheet)

## Departmental

1. UK BAE Graduate League of Students (BAEGLS), Advisor. 2022 – present. Co-Advisor. 2021 – 2022.
2. UK BAE Undergraduate Curriculum Committee, Member. 2023 – present.
3. UK BAE Research and Graduate Studies Committee, Member. 2021 – present.
4. UK BAE Student Recruitment and Outreach Committee, Member. 2021 – present.
5. UC Davis BAE Space and Facilities Committee, Member. 2018 – 2020.
6. UC Davis BAE Graduate Studies Committee, Member. 2017 – 2020.
7. UC Davis Biological and Agricultural Engineering Grad Student Association (BAE-GSA). President, 2016-2017. Vice President, 2017-2018. Alumni Relations Chair, 2018-2019.
8. International Exchange and Engineering Design Workshop for Tokyo University of Agriculture and Technology (TUAT) and UC Davis Students. Facilitator/Organizer, 2017.

## University

1. UK Estate Whiskey Alliance Research and Education Committee. Member. 2024 – Present.
2. UK Graduate Certificate in Distillery Engineering Committee. Associate. 2021 – Present.
3. UC Davis One Health Symposium Planning Committee. Member. 2018 – 2020.
4. CA Higher Education Sustainability Conference Student Convergence Committee. Member. 2017.
5. University of California System-Wide Zero Waste Task Force. Member. 2017.

## Regional

1. ASABE CA/NV Section. Public Relations Officer, 2018-2019. Membership Officer, 2019-2020. Vice Chair, 2020-2022.
2. ASABE CA/NV Student Rally Planning Committee. 2018-2019
   1. Student Executive Subcommittee, Chair
   2. Logistics and Space Subcommittee, Chair
   3. Governing Documents, Member
   4. Budget, Member
   5. Programming, Member
3. ASABE CA/NV Student Rally Executive Committee. Chair, 2019-2020. Past Chair, 2020-2021.

## National

1. ASABE P-703 Food Processing Committee. Secretary/Vice Chair, 2024 – Present.
2. S-1075 Multistate Research Project: The Science and Engineering for a Biobased Industry and Economy. Vice Chair, 2024 - Present. Secretary, 2023 - 2024.
3. ASABE International Student Branch (ISB). Faculty Advisor, 2024 – Present.
4. ASABE P-131 Student Rally Leadership Networking Program (SRLNP). Chair, 2023 - Present.

## Session Moderator

1. University of California Davis Biological and Agricultural Engineering Alumni and Career Panel. 2020.
2. US EPA California Bioresources Alliance Symposium. 2020. Session: Agricultural Residue Management and Healthy Soil. <https://www.epa.gov/sites/production/files/2020-11/documents/2020_california_bioresources_alliance_symposium_program-2020-11-02.pdf>.
3. University of California Davis One Health Symposium. 2019. Session: Political Interfaces and One Health. **World-Wide Winner Best 2019 Student Event (One Health Commission).** <https://ce.vetmed.ucdavis.edu/symposia-events/6th-annual-one-health-symposium>.
4. University of California Davis One Health Symposium. 2019. Breakout Session: Coastal Borders and Harmful Algal Blooms (HABs).
5. University of California Davis Biological and Agricultural Engineering Alumni and Career Panel. 2019.
6. University of California Davis One Health Symposium. 2018. Session: Environmental Sustainability of Health Professions. <https://ce.vetmed.ucdavis.edu/symposia-events/5th-annual-one-health-symp>.

# Media Coverage and interviews

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