TYLER J. BARZEE, Ph.D., E.I.T.

University of Kentucky
Department of Biosystems and Agricultural Engineering
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CURRENT POSITION

Assistant Professor, University of Kentucky, Department of Biosystems and Agricultural Engineering, Lexington, K.Y. July 2021 to present.

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: Bioprocess Engineering. GPA: 3.86. Magna Cum Laude.

PROFESSIONAL EXPERIENCE

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, South Carolina, October 2013 to present. Credential #14-608-39.

GRANTS AND CONTRACTS

Nationally Competitive

Current

1. Zhang, R., **Barzee, T. J.**, Fan, M. 2020. Demonstration of a Mobile Digestate Processing System to Maximize Food Waste Diversion and Create Valuable Biofertilizer Products. US EPA. **$299,627**. 2/1/21 – 1/1/23. Barzee: Co-PI.

Completed

1. **Barzee, T. J.**, Jones, C., Edalati, A. 2019. Initiating a CA/NV Section ASABE Student Rally. ASABE Initiative Fund. **$30,000**. 5/1/2019 – 5/1/2021. Barzee: Key Contact, Lead Author.

Regionally Competitive

Co-Authored Proposals

1. Zhang, R., Pan, Z., Kebreab, E., Hess, M. 2021. Effect of Almond Hulls on Reduction of Enteric Methane Emissions from Cattle. Almond Board of California. **$99,334 requested**. 7/1/21 – 6/30/22. Pending. Barzee: Co-Author (Postdoc).

2. Zhang, R., Pan, Z., El-Mashad. H., Yokoyama, W. H. 2020. Converting Almond and Walnut Hulls into Food and Health Products. California Department of Food and Agriculture. **$338,853**. 11/1/20 – 10/31/22. Barzee: Co-Author (Postdoc).

3. Zhang, R. 2020. Production of Dairy Manure and Almond Wood Compost for Healthy Soils. California Dairy Research Foundation. **$91,655**. 1/1/20 – 12/1/21. Barzee: Co-Author (GSR).

4. Zhang, R., Brown, P., Khalsa, S., D., Mitloehner, F., McGarvey, J., A. 2019. Carbon Sequestration and Soil Health Improvement in Almond Orchards Using Dairy Manure Compost. California Department of Food and Agriculture. **$249,997**. 8/1/19 – 3/31/22. Barzee: Co-Author (GSR).

5. Zhang, R. 2019. Production of Dairy Manure and Almond Wood Compost for Healthy Soils. California Dairy Research Foundation. **$90,232**. 1/1/20 – 12/31/21. Barzee: Co-Author (GSR).

6. Zhang R., 2019. Demonstration of an Advanced Manure Management System for Reducing Greenhouse Gas Emissions and Producing Valuable Products. California Department of Food and Agriculture. $**999,994**. 1/1/20 – 12/31/21. Barzee: Co-Author (GSR).

Internally Competitive

Pending

1. Zhang, R., Pan, Z. 2021. BioBoba™: Product Development of a New Healthy Boba Innovation. UC Davis Venture Catalyst, Office of Research. 7/1/21 – 6/30/22. Barzee: Key Personnel.

PUBLICATIONS

Refereed

In-Press

1. **Barzee, T. J.**, Edalati, A., Rapport, J. El-Mashad, H., Zhang, R. 2021. Pilot-Scale Production and Characterization of Biofertilizers from Anaerobically Digested Dairy Manure and Food Waste. *Transactions of the ASABE.* https://doi.org/doi: 10.13031/trans.13767.

Published

1. Lin, Y., Zhao, Y., Ruan, X., **Barzee, T. J.**, Zhang, Z., Kong, H., Zhang, X. 2019. The potential of constructed wetland plants for bioethanol production. *BioEnergy Research*. https://doi.org/10.1007/s12155-019-10065-y.

2. **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.* https://doi.org/10.3389/fsufs.2019.00058.

3. 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. https://doi.org/10.1656/058.017.0413.

In-Preparation

1. **Barzee, T. J.**, El-Mashad, H., Zhang, R. Modeling of the Equilibrium and Kinetic Immobilization Behavior of Fungal-Assisted Harvesting of Algae.

2. **Barzee, T. J.**, Yothers, C., Edalati, A., Rude, K., El-Mashad, H., Franz, A., Zhang, R. Microalgae Cultivation, Harvest, and Water Recycling Using Processed Anaerobic Digestate as Feedstock.

3. **Barzee, T. J.**, Edalati, A. El-Mashad, H., Zhang, R. Economic Analysis of Biofertilizer Production Systems from Anaerobic Digestate.

Book Chapters

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. 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*.

2. 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 CO_2 and Waste Nutrients from Anaerobic Digesters. *Final Research Report to the California Energy Commission*.

3. 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*.

4. 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*.

5. 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://biomass.ucdavis.edu/wp-content/uploads/ARB-Report-Final-Draft-Transmittal-Feb-26-2016.pdf.

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.

3. 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. Zhang, R., Cao, L., **Barzee, T.**, Pan, Z. 2020. Edible Mycoprotein Pellets. (Provisional Patent Application).

PRESENTATIONS

Conference Oral Presentations

1. Chio, A., **Barzee, T.**, Zhang, R. 2020. Heterotrophic Production of Microalgae *Chlorella sorokiniana* Using Hydrolyzed Lactose as Substrate. Oral, American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting (AIM).

2. 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.

3. 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.

4. **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.

5. Chio, A., **Barzee, T.**, Cao, L., Zhang, R. 2019. Heterotrophic Growth of Algae for Animal Feed Application. Oral, ASABE AIM, Boston, MA.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. **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.

13. 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.**

14. 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.

15. **Barzee, T.**, Zhang, R., El-Mashad, H. 2017. Fungal-Assisted Harvesting of Algae and Bacteria. Oral, ASABE Annual International Meeting, Spokane, WA.

16. **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.

17. 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.

18. 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.

19. **Barzee, T.**, Zhang, R., Fan, Z., El-Mashad, H. 2016. Ammonia Fungi Pelletization of Microalgae for Treatment of High Strength Wastewater. Oral, ASABE Annual International Conference, Orlando, FL.

20. 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 Annual International Conference, Orlando, FL.

21. **Barzee, T.**, Zhang, R., Edalati, A., El-Mashad, H., Rapport, J., Adams, C. 2015. Sustainable Biofertilizer Production from Anaerobically Digested Organic Wastes. Oral, ASABE Annual International Conference, New Orleans, LA.

Conference Poster Presentations

1. 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.

2. 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.**

3. 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.

4. 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.

5. 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.

6. **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.

7. **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.

8. **Barzee, T.**, Edalati, A., El-Mashad, H., Zhang, R. 2017. Microalgae Cultivation on Processed Anaerobic Digestates. Poster, ASABE Annual International Conference, Spokane, WA.

9. **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.

10. 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.**

11. **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.**

12. **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.

13. **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.

Seminars

1. **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.

2. **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.

3. **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.

4. 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.

5. **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.

6. **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.

7. **Barzee, T.** 2017. Introduction to Tyler Barzee's Research. Presented to Tokyo University of Agriculture and Technology on 3/29/17. Tokyo, JP.

8. **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.

9. **Barzee, T.** 2016. Education in the United States. Presented to Hunan University Delegation on 11/30/16. Davis, CA.

10. **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.

Extension Presentations

1. Tours Led of the UC Davis Renewable Energy Anaerobic Digester (30 tours, 441 attendees, 2016-2021)

Date	Group	Estimated Attendees
1/17/2020	ASABE CA/NV Section Student Rally	10
11/8/2019	Zero Waste Club, Society of Biological Engineers, and BAE-GSA Students	30
9/17/2019	Incoming Energy Graduate Group Students	12
9/10/2019	Prospective Student from Pennsylvania State University	1
5/15/2019	NASA CUBES	25
5/14/2019	Director of Sustainability, University of Talca, Chile	2
3/27/2019	Athena Elementary Students	17
11/8/2018	Society of Biological Engineers (SOBE) Student Group	10

10/23/2018	Learning Exchange for Community Leaders and Advocates from Uganda/DRC	20
9/18/2018	Incoming Energy Graduate Group Students	10
8/31/2018	Professor from University of Minnesota	1
8/17/2018	Planet Forward Journalism Students and Monsanto Employees	18
6/15/2018	Everflux Technologies	1
1/25/2018	Federalimentare Young Entrepreneurs Delegation	22
1/9/2018	California Energy Commission Staff and Interns	10
9/14/2017	Incoming Energy Graduate Group Students	20
8/31/2017	Kyoto University Students	15
8/24/2017	Dean Curtis of College of Engineering	1
7/24/2017	Tokyo University of Agriculture and Technology Students	15
6/20/2017	Alumni, Prospective, and Current Students	7
6/15/2017	FIDEUR of Guadalajara	2
6/1/2017	Cultural Studies Students and Professors	8
3/15/2017	USDA NRCS Engineers	60
9/2/2016	Africa Trade Show	30
8/24/2016	CDFA Biofertilizer Field Day	30
7/28/2016	Nelson Mandela Fellows	30
7/1/2016	ARPA-E (of DOE)	3
5/26/2016	Arla Food and UCD Grad Students	10
3/2/2016	Pentair Executives	6
3/2/2016	EBS 245 Class	15

TEACHING

Courses Taught

Position	Term	Course Number	Title	# of Students	Course Quality[a]	Teaching Quality[a]
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
TA	W '18			20	-	4.91
TA	W '17			30	-	4.77
TA	F '18	EBS 170	Engineering Design and Professional Responsibilities	20	Not rated	Not rated

[a] Scale: 1-5

Guest Lectures

1. EBS 135: Overview of California Dairy Manure Programs and Models. Instructor: Ruihong Zhang. Presented on 3/11/2021.

2. EBS 135: California Dairy 101. Instructor: Ruihong Zhang. Presented on 3/8/2021.

3. EBS 135: Processing and Utilization of Anaerobic Digestate as Biofertilizer for Production of Crops and Microalgae. Instructor: Ruihong Zhang. Presented on 3/4/2021.

4. EBS 135: Solid-Liquid Separation Processes: Coagulation, Flocculation, and Sedimentation. Instructor: Ruihong Zhang. Presented on 1/27/2021.

5. EBS 135: Thermal Environment Modeling and Biological Reaction Energetics. Instructor: Ruihong Zhang. Presented on 1/20/2021.

6. EBS 135: Sampling and Sample Preservation. Instructor: Ruihong Zhang. Presented on 1/14/2021.

7. EBS 135: Sustainability at the University of California. Instructor: Ruihong Zhang. Presented on 1/6/2021.

8. EBS 135: Bioenvironmental Engineering. Engineering for Sustainability and Life Cycle Assessment. Instructor: Ruihong Zhang. Presented on 1/6/2021.

9. 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.

10. EBS 200: Research Methods in Biological Systems Engineering. Research Methods: Experimental Process and Design. Instructor: Ruihong Zhang. Presented on 10/28/2020.

11. EBS 200: Research Methods in Biological Systems Engineering. Research and Life Tips from a BAE Alum. Instructor: Ruihong Zhang. Presented on 10/5/2020.

12. 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.

13. EBS 170: Engineering Design and Professional Responsibilities. Engineering Design: Evaluating Alternatives and Evaluating Success. Instructor: Ruihong Zhang. Presented on 11/7/2018.

14. 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

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

Undergraduate Student

Senior Design

1. EBS 170, UC Davis Biological Systems Engineering. BioBoba: Designing a Mycoprotein Production System. 2021. 5 Students. Postdoctoral Advisor (Faculty Advisor: Ruihong Zhang).

2. 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).

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. 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).

5. EBS 170, UC Davis. Pilot Scale Algae Photobioreactor Utilizing Anaerobic Digester Feedstock. 2017. 4 Students. Graduate Student Advisor (Faculty Advisor: Ruihong Zhang).

6. 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

*Total Graduate Award and Fellowship Funding = **$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.

PROFESSIONAL DEVELOPMENT

Research Professional Development

Coursework

1. 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 Professional Development

Participant

1. UC Davis Center for Educational Effectiveness. 2016. Beyond Grades: Assessment and Feedback for Student Learning.

SERVICE

Manuscript Review (number reviewed)

1. Journal of Environmental Management (24)
2. Agronomy (3)
3. Bioresource Technology (2)
4. Applied Engineering in Agriculture (1)
5. Resources, Conservation & Recycling (1)
6. Journal of Soil Science and Plant Nutrition (1)
7. Sustainability (1)
8. Horticulturae (1)
9. Mathematics (1)
10. Applied Sciences (1)
11. Industrial Biotechnology (1)

Departmental

1. Space and Facilities Committee, Member. 2018 – present.
2. Graduate Studies Committee, Member. 2017 – present.
3. Biological and Agricultural Engineering Grad Student Association (BAE-GSA). President, 2016-2017. Vice President, 2017-2018. Alumni Relations Chair, 2018-2019.
4. International Exchange and Engineering Design Workshop for Tokyo University of Agriculture and Technology (TUAT) and UC Davis Students. Facilitator/Organizer, 2017.

University

1. UC Davis One Health Symposium Planning Committee. Member. 2018 – 2020.
2. CA Higher Education Sustainability Conference Student Convergence Committee. Member. 2017.
3. 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-present.
2. ASABE CA/NV Student Rally Planning Committee. 2018-2019
    a. Student Executive Subcommittee, Chair
    b. Logistics and Space Subcommittee, Chair
    c. Governing Documents, Member
    d. Budget, Member
    e. Programming, Member
3. ASABE CA/NV Student Rally Executive Committee. Chair, 2019-2020. Past Chair, 2020-present.

Session Moderator

1. 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.

2. 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.

3. University of California Davis One Health Symposium. 2019. Breakout Session: Coastal Borders and Harmful Algal Blooms (HABs).

4. 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

1. Pflueger-Peters, N. 2019. Student Spotlight: Tyler Barzee. https://bae.ucdavis.edu/news/student-spotlight-tyler-barzee.

2. Sino-US Food and Agriculture Innovation Center. 2019. Tyler Barzee, a Ph.D. Candidate in Biological Systems Engineering, UC Davis, Visits SUFAIC. https://www.sufaic.com/single-post/2019/07/31/Tyler-Barzee-a-PhD-Candidate-in-Biological-Systems-Engineering-UC-Davis-Visits-SUFAIC.

3. UC Davis BFTV Cluster. Tyler Barzee Awarded First BAE Dept. William & Nongkarn Chancellor Graduate Fellow Award. https://news.bftv.ucdavis.edu/biological-and-agricultural-engineering/tyler-barzee-awarded-first-bae-dept-william-nongkarn.

4. Lairmore, M. 2018. One Health Symposium Recap. UC Davis One Health Institute Blog. https://www.ucdavis.edu/one-health/symposium-recap.

5. University of California Office of the President. 2018. Tyler Barzee CNI Fellow Class of 2018. https://ucop.edu/carbon-neutrality-initiative/cni-fellows/2018-cni-fellows/barzee.html.

6. Johnson, B. 2017. Biofertilizer made from treated manure, food waste. Daily Democrat. https://www.dailydemocrat.com/2017/07/21/biofertilizer-made-from-treated-manure-food-waste/.

7. UC Davis Biological and Agricultural Engineering. 2017. Student spotlight: Tyler Barzee, BAE PhD student with numerous fellowships. https://bae.engineering.ucdavis.edu/blog/student-spotlight-tyler-barzee-bae-phd-student-numerous-fellowships/.

8. UC Davis Engineering Progress Magazine. 2016. Students Present Bio-Fertilizer Research at National Design Expo. https://issuu.com/ucdaviscoe/docs/engineering_progress_summer_2016.

9. Coley., M., White, A. 2016. Biodigesters turn food into electricity, but can they also create fertilizer? Food Blog. UC Division of Agriculture and Natural Resources. https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=22058.

10. UC Davis Biological and Agricultural Engineering. 2016. BAE teams win poster competition at CA/NV ASABE meeting. https://bae.engineering.ucdavis.edu/blog/bae-teams-win-poster-competition-at-canv-asabe-meeting/.