Czarena Crofcheck, Ph.D., P.E.
Spring 2024

CURRICULUM VITAE

CONTACT INFORMATION

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EDUCATION

Ph.D. Biosystems and Agricultural Engineering, University of Kentucky, 2001.

M.S. Chemical Engineering, University of Kentucky, 1997.

B.S. Chemical Engineering, Michigan State University, 1994.

EXPERIENCE

Professor, Biosystems and Agricultural Engineering Department, University of Kentucky, July 2015 to present.

Associate Dean, Lewis Honors College, University of Kentucky, 2018 to 2021.

Associate Professor, Biosystems and Agricultural Engineering Department, University of Kentucky, July 2007 to July 2015.

Assistant Professor, Biosystems and Agricultural Engineering Department, University of Kentucky, April 2001 to June 2007.

LICENSURE

Professional Engineer (PE), License # 24390 State of Kentucky.

GRANTS AND CONTRACTS (TOTAL OF $57.34 MILLION, $692,054 AS PI)

Nationally Competitive

Current

Andrews, R. (PI), M. McGlue (co-I), E. Woolery (co-I), S. Bryson (co-I), and **C. Crofcheck** (co-I). 2024. RII Track-1: Climate Resilience through Multidisciplinary Big Data Learning, Prediction & Building Response Systems (CLIMBS). $20,000,000 from NSF-EPSCoR and $2,500,000 from Kentucky (7/1/24 -6/31/29). National Science Foundation (llA- 2344533 [EPSCoR]).

Completed

Andrews, R. (PI), D. Poppa (co-I), J. Anthony (co-I), **C. Crofcheck** (co-I), and S. Debolt (co-I). 2019. Kentucky's Advanced Partnership for Enhanced Robotics and Structures. $20,000,000 from NSF-EPSCoR and $2,500,000 from Kentucky (7/1/19 -6/31/24). National Science Foundation (llA- 1849213 [EPSCoR]).

Andrews, R. (PI), D. Bhattacharyya (co-I), Y.T. Cheng (co-I), **C. Crofcheck** (co-I), and S. Debolt (co-I). 2014. Powering the Kentucky Bioeconomy for a Sustainable Future. $20,000,000 from NSF-EPSCoR and $4,000,000 from Kentucky (8/1/14-7/31/19). National Science Foundation (llA-1355438 [EPSCoR]).

Crocker, M., Groppo, J. and **C. Crofcheck** (co-PI). 2015. A microalgae-based platform for the beneficial reuse of CO_2 emissions from power plants. Department of Energy. $990,334. (10/1/2015-9/30/17).

Nokes, S.E., R. Anex, M. Chinn, **C. Crofcheck,** S. DeBolt, M. Flythe, C. Foster, G. Halich, B. Knutson, B. Lynn, C. Lee, M. Montross, T. Mueller, J. Posselius, S. Rankin, J. Seay, S. Shearer, R. Smith, T. Stombaugh, M. Veal, and E. Webb. 2010. On-Farm Biomass Processing: Towards an Integrated High-Solids Transporting/Storing/Processing System (7/1/10-6/30/16). USDA-ARS Biomass Research Development Initiative. Total grant $7,029,024 (not included in my total above), participating as a PI on a scope of $105,000 (included in my total above).

Raman, D.R. (Iowa State University, ISU), R. Brown (ISU), T. Brumm (ISU), R. Anex (ISU), J. Euken (ISU), Nokes, S. (UK), and **C. Crofcheck** (co-PI), J. Van Gerpen (University of Idaho, UI), and B.B. He (UI). 2006. A Virtual Education Center for Biorenewable Resources: Building Capacity and Humanizing Distance-Education. USDA Higher Education Challenge Grant Program. $500,000 for 3 years for three institutions (9/06-9/11).

Hastings, T., M.P. Mengüç, and **C. Crofcheck** (co-PI). Directed and Selective Self-Assembly of Nanosize Particles via Surface-Plasmon Excitation. 2006. NSF-NER, $130,000 for 12 months (7/1/06-12/30/07).

Gates, R.S. (UK), H. Xin (Iowa State University, ISU), J.R. Bicudo (UK), M.D. Montross (UK), **C. Crofcheck**, B.L. Steward (ISU), I.F. Tinôco (Universidade Federal de Viçosa, UFV), A.L.A. Tinôco (UFV), S. Zolnier (UFV), J.W.B. Nascimento (Universidade Federal de Campina Grande, UFCG), P.D. Fernandes (UFCG), D.A. Furtado (UFCG), T. Yanagi, Jr. (Universidade Federal de Lavras, UFL), V.H. Teixeira (UFL), I.J.O. Silva (Universidade de São Paulo, USP), and D.J. Moura (USP). 2003. Biosystems and agricultural engineering training - Consortium for sustainable plant and animal production systems. US-Brazil Higher Education Consortia Program (FIPSE-CAPES). US Department of Education. Project duration: $204,000 for 3 years (9/1/03-8/30/08).

Payne, F., **C. Crofcheck** (co-PI), and S. Nokes. National Needs Graduate Fellowship for Bioprocessing Engineers. 2003. Funded by USDA/CSREES, $207,000 for 3 years (2003-2006).

Tao, D., M.P. Mengüç, and **C. Crofcheck** (co-PI). Development of a Novel Optical Radiation Depolarization Technique for On-line Measurements of Particle and Bubble Sizes. 2003. Funded by Center for Advanced Separation Technologies (DOE), $150,000 for 2 years (4/1/03-3/31/05).

Regionally Competitive

Current

Messer, T., C. Rodriguez Lopez, A. Tokranov, and **C. Crofcheck**, "The Effects of PFAS Loading on Biogeochemical Cycling, Fate, and Transport in Wetlands", $309,908.00 - federal; 3 years. GRANT14161309

Completed

Messer, T. (co-PI), C. Crofcheck (co-PI). 2023. The Effects of PFAS Loading on Biogeochemical Cycling, Fate, and Transport in Wetlands. $19,992 from USGS 104(g) (9/23-9/24).

Pratt, B., B. Barnett, **C. Crofcheck** (subcontract), and T. Mark. Low Cost Biomass Saccharification Process for Producing Biofuels, DEDI, 1 year. (4/1/13-3/31/14), $26,153.

Crofcheck, C. Enhancement of Collaboration at the Annual Meeting of Institute of Biological Engineering (IBE) ORAU Meeting grant, March 2014, $3000.

Payne, F., M. Montross, **C. Crofcheck,** M. Newman, K. Lawrence, P. Bosoon, B. Windham, and M.-G. Danao. 2010. Rapid Optical Detection of Microbial Contamination in Food Matrices, National Institute for Hometown Security Kentucky Critical Infrastructure Protection Program, $1.8 million for 2 years (10/1/10-9/30/12).

Andrews, R., and **C. Crofcheck** (co-PI). 2007. On-site Thermochemical Densification of Biomass. Kentucky's Governor's Office of Energy Policy, $133,124 for 24 months (9/1/07-8/31/09).

Montross, M., T. Pfeiffer, **C. Crofcheck** (co-PI), and S. Shearer. 2007. Feasibility of Ethanol Production from Sweet Sorghum in Kentucky. Kentucky's Governor's Office of Energy Policy, $111,664 for 24 months (9/1/07-8/31/09).

Crocker. M. and **C. Crofcheck** (co-PI)**.** 2007. Construction of a Fixed Bed Reactor for Continuous Production of Biodiesel. Kentucky's Governor's Office of Energy Policy, $58,413 for 13.5 months (5/15/07-6/30/08).

Crofcheck, C. (PI) and M. Crocker. 2006. Development of Heterogeneous Catalysts for Improved Biodiesel Production. Kentucky Office of Energy Policy, $128,749 for 24 months (1/1/06-12/31/07).

Montross, M.D., C.D. Lee, and **C.L. Crofcheck** (co-PI). 2005. Evaluation of High Fermentable Corn Hybrids in Kentucky. Special grant from USDA-CSREES to the University of Kentucky (New Crop Opportunities), $57,912 for 3 years.

Montross, M.D., **C.L. Crofcheck** (co-PI), S.A. Shearer, S.E. Nokes, and R.E. Berson. 2006. Development of an Ethanol Pilot Scale Facility to Evaluate the Effect of Collection, Storage, and Pretreatment of Corn Stover. Kentucky Rural Energy Consortium, $250,000 for 18 months (1/1/06-9/30/07).

Crofcheck, C.L. (PI) and M. Crocker. 2006. Novel Catalytic Approaches for Bio-Oil Upgrading. Kentucky Rural Energy Consortium, $101,083 for 18 months (1/1/06-9/30/07).

Crofcheck, C. (PI) and R. Andrews. 2004. Utilization of Nickel Nanoparticles to Facilitate the Recovery of Histidine-tagged Proteins. KSEF, $15,000 for 12 months (6/1/04-11/31/05).

Crofcheck, C. (PI), M. Montross, and S. McNeill. 2004. Tours of Ethanol and Biodiesel Production Facilities and Users across Kentucky. DOE/SSEB Southeast State and Regional Partnership (SEBSRP), $25,000 for 12 months (6/1/04-5/31/05).

Crofcheck, C. (PI), M. Jay, and P.M. Bummer. 2004. Improved Recovery of Engineered Pharmaceutical Proteins from Tobacco Plant Extract. KSEF, $56,069 for 24 months (7/1/02-6/30/2004).

Crofcheck, C. (PI) and M.P. Mengüç. 2003. Monitoring the Bubble Size and Liquid Hold-up in a Foam Fractionation Column Using a Polarized Light Sensor. KSEF, $15,000 for 12 months (7/1/03-6/30/04).

Montross, M., **C. Crofcheck** (co-PI), and A. Berkovich. 2003. Mild Solvent Extraction of Wood Waste to Produce Value-Added Materials. KSEF, $15,000 for 12 months (7/1/03-6/30/04).

Crofcheck, C. (PI), M. Jay, P.M. Bummer. 2002. Foam Fractionation of Engineered Proteins from Tobacco Plant Extract. Funded by the University of Kentucky, Tobacco and Health Research Institute. $37,000 for 12 months. (10/1/2002-9/30/2003).

Other Grants

Shi, J., T. Barzee, and **C. Crofcheck.** The Science and Engineering for a Biobased Industry and Economy. Multistate Research Project S-1075. 5 years (10/01/2023 to 9/30/2028).

Completed

Shi, J. and **C. Crofcheck**. 2015. Science and Engineering for a Biobased Industry and Economy. Multistate Research Project S-1041. 5 years (10/1/15-9/30/17).

Crocker, M. and **C. Crofcheck** (co-PI). 2015. Microalgae-based Carbon Dioxide Capture and Recycle for the production on Fuels and Plastics Kentucky's Department for Energy Development and Independence. $125,000. (7/1/2015-6/30/16).

Crocker, M. and **C. Crofcheck** (co-PI). 2014. Techno-economic and Lifecycle Evaluation of Optimized Photobioreactor- and Pond-based Microalgae Systems for CO_2 Mitigation Kentucky's Department for Energy Development and Independence. $155,146. (7/1/2014-6/30/15).

Crofcheck, C. (PI) and K. Liu. 2013. Screening and Evaluation of Microalgae in Oilfield Sewage – Proof of Concept. Sinopec Petroleum Engineering Corporation, China. $50,000. (11/11/13-10/31/14).

Crofcheck, C. (PI). 2011. TCE Bioaccumulation by Microalgae: Proof of Concept. Kentucky Research Consortium for Energy and the Environment. $15,000. (10/1/11-9/30/14).

Andrews, R., M. Crocker, K. Liu, **C. Crofcheck** (co-PI), and M. Montross. 2011. Demonstration of an Algae-based System for CO_2 Mitigation from Coal-fired Power Plants. Kentucky's Department for Energy Development and Independence, $1,292,961 for 7/01/11-6/30/14.

Andrews, R., M. Crocker, K. Liu, **C. Crofcheck** (co-PI), M. Montross. 2008. Development of an Algae-based System for CO_2 Mitigation from Coal-fired Power Plants. Kentucky's Department for Energy Development and Independence, $2,092,596 for 9/16/08-12/31/11.

Crofcheck, C. (PI) and M. Montross. 2009. Development of an Algae-based System for CO_2 Mitigation. Hatch Proposal. 5 years (10/1/09-9/30/14).

Andrews, R., M. Crocker, **C. Crofcheck** (co-PI)**,** and M. Montross. 2008. Establishment of a Laboratory for Biofuels at the University of Kentucky. Department of Energy, $1,905,550 for 7/01/08-1/1/13.

Crofcheck, C. (PI) and G. Brion. 2004. Reducing the impact of milk house wastewater by on-site treatment. Senate Bill 271, Water Research Proposals-Special Grants $100,000 for 24 months. (7/1/04-6/30/06).

Crofcheck, C. (PI). 2002. Characterization of Laboratory and Pilot Scale Foam Fractionation of Industrial Enzymes. Hatch Proposal. 5 years (4/1/02-9/30/09).

Nokes, S.E., H.J. Strobel, **C. Crofcheck** (Co-PI), and M. Montross. 2002. The Science and Engineering for a Biobased Industry and Economy. Multistate Research Project S-1007. (10/1/02-9/30/07).

AWARDS

Tau Beta Pi Outstanding Teacher, 2023.

University of Kentucky, Outstanding Biosystems and Agricultural Engineering Teacher, 2005-2006, 2012-2017, 2022.

Million Women Mentors State Trailblazer Award 2021

Henry Mason Lutes Award for Outstanding Engineering Education, 2006, 2017.

Sustainability Outstanding Reviewer Award, 2017

College of Agricultural, Food and the Environment Instruction Empowerment Award, 2016

Wethington Research Award, 2004-2017. University of Kentucky award for generating salary savings from external funding.

University of Kentucky College of Engineering's Dean's Award for Excellence in Service, 2014.

ASABE AW Farrall Young Educator Award, 2009.

ASABE Honorable Mention Paper Award, 2006, 2007.

University of Kentucky College of Agriculture Student Council Early Career Outstanding Teaching Award, 2006.

University of Kentucky Provost's Award for Outstanding Teaching Award, 2006.

Gamma Sigma Delta Master Teacher Award, 2006.

PUBLICATIONS

Refereed Publications (47 total)

Authors directly supervised are shown in bold italics.

Published

Hockensmith, D, **C. Crofcheck**, T. Barzee. Impacts of material characteristics on the anaerobic digestion kinetics and biomethane potential of American bourbon and whiskey stillage, Journal of Environmental Management, 367, (2024) DOI: 10.1016/j.jenvman.2024.121975

Hunter, J. R., Q. Qiao, Y, Zhang, Q. Shao, **C. Crofcheck**, J. Shi. 2023. Green solvent mediated extraction of micro- and nano-plastic particles from water, Scientific Reports, 10585 (2023). DOI: 10.1038/s41598-023-37490-6.

Wilson, M. H., ***A. Shea***, J. Groppo, **C. Crofcheck**, D. Quiroz, J. C. Quinn, M. Crocker. 2021. Algae-Based Beneficial Re-use of Carbon Emissions Using a Novel Photobioreactor: a Techno-Economic and Life Cycle Analysis, Bioenergy Research, 14(1):292-302.

Rhea, N., **C. Crofcheck**, J. Groppo. 2017. Evaluation of flocculation, sedimentation, and filtration for dewatering of *Scenedesmus* algae. Transactions of the ASABE, 60(4):1359-1367.

Wilson, M. H., D. T. Mohler, J. G. Groppo, T. Grubbs, S. Kesner, E. M. Frazar, ***A. Shea,*** **C. Crofcheck**, M. Crocker. 2016. Capture and recycle of industrial CO_2 emissions using microalgae. Applied Petrochemical Research, 6(3), 279-293. doi:10.1007/s13203-016-0162-1.

***E, X.,* C. Crofcheck,** and M. Crocker. 2016. Application of recycled media and algae-based anaerobic digestate in *Scenedesmus* cultivation. Journal of Renewable & Sustainable Energy, 8(1):p013116-1-013116-14.

***E, X.,* and C. Crofcheck**. 2014. Pretreatment of *Scenedesmus* biomass as a potential anaerobic substrate. 2014. Biological Engineering Transactions, 7(1): 41-52.

Shin, H.-Y., J.-H. Ryu, S.-Y. Bae, **C. Crofcheck**, and M. Crocker. 2014. Lipid extraction from *Scenedesmus* sp. microalgae for biodiesel production using hot compressed hexane. Fuel, 130:66-69.

Wilson, M. H., J. Groppo, A. Placido, S. Graham, S. A. Morton III, E. Santillan-Jimenez, ***A. Shea***, M. Crocker, **C. Crofcheck**, and R. Andrews. 2014. CO_2 recycling using microalgae for the production of fuels. Applied Petrochemical Research 4:41-53.

Crocker, M., M. H. Wilson, J. Groppo, A. Placido, S. Graham, E. Santillan-Jimenez, T. Morgan, J. Shoup, D. Kim, L. Mills, H. Y. Shin, and **C. Crofcheck**. 2014. CO_2 Recycling using Microalgae for the Production of Fuels. Applied Petrochemical Research, 246.

Crofcheck, C., ***A. Shea***, M. Montross, M. Crocker, and R. Andrews. 2013. Influence of flue gas components on the growth rate of *Chlorella vulgaris* and *Scenedesmus acutus* utilized for CO_2 mitigation. Transactions of the ASABE, 56(6):1421-1429.

***Frederick, J.,* C. Crofcheck**, S.P. Walker, M.C. Newman, and F. Payne. 2013. Evaluation of Chemical Additives for the Separation and Recovery of Bacteria from Food Matrices. Biological Engineering Transactions, 6(2):105-115.

Crofcheck, C., ***X. E, A. Shea***, M. Montross, M. Crocker, and R. Andrews. 2012. Influence of media composition on the growth rate of *Chlorella vulgaris* and *Scenedesmus acutus* utilized for CO_2 mitigation. Journal of Biochemical Technology, 4(2):589-594.

***Swamy, J.N.,* C.L. Crofcheck**, and M.P. Mengüç. 2010. Polarized light based scheme to monitor column performance in a continuous foam fractionation column, Journal of Biological Engineering, 4(5).

Duguid, K.B., M.D. Montross, C.W. Radtke, **C.L. Crofcheck**, L.M. Wendt, and S.A. Shearer. 2009. Effect of Anatomical Fractionation on the Enzymatic Hydrolysis of Acid and Alkaline Pretreated Corn Stover, Bioresource Technology, 100(21):5189-5195.

Fisk, C.A., T. Morgan, Y.Y. Ji, M. Crocker, **C. Crofcheck**, and S.A. Lewis. 2009. Bio-oil Upgrading Over Platinum Catalysts Using In Situ Generated Hydrogen, Applied Catalysis A: General, 358(2):150-156.

Coleman, N.P., **C.L. Crofcheck**, S.E. Nokes, and B. Knutson. 2009. Effects of Growth Media pH and Reaction Water Activity on the Conversion of Acetophenone to [S]-phenylethanol by *Saccharomyces cerevisiae* Immobilized on Celite 635® and in Calcium Alginate, Transactions ASABE, 52(2):656-671.

***Shea, A.P.*, C.L. Crofcheck**, F.A. Payne, and Y.L. Xiong. 2009. Foam Fractionation of α-Lactalbumin and β-Lactoglobulin from a Whey Solution. Asia-Pacific Journal of Chemical Engineering, 4(2):191-203.

***Swamy, J.N.,* C. Crofcheck**, and M.P. Mengüç. 2009. Time Dependent Scattering Properties of Slow Decaying Liquid Foams, Colloids and Surfaces A: Physicochemical and Engineering Aspects, 338(1-3):80-86.

Hawes, E.A., J.T. Hastings, **C. Crofcheck,** and M.P. Mengüç. 2008. Spatially selective melting and evaporation of nanosized gold particles. Optics Letters, 33(12):1383-1385.

Shumaker, J.L., **C. Crofcheck**, S.A. Tackett, E. Santillan-Jimenez, T. Morgan, Y. Ji, M. Crocker, and T.J. Toops. 2008. Biodiesel synthesis using calcined layered double hydroxide catalysts. Applied Catalysis B: Environmental, 82(1-2):120-130.

Shumaker, J.L., **C. Crofcheck**, S.A. Tackett, E. Santillan-Jimenez, and M. Crocker. 2007. Biodiesel production from soybean oil using calcined Li–Al layered double hydroxide catalysts. Catalysis Letters, 115(1-2):56-61.

Singh, A., **C. Crofcheck**, G. Brion. 2007. Characterization of Dairy Milk House Wastewater in Kentucky. Applied Engineering in Agriculture, 23(2):165-170.

Duguid, K.B., M.D. Montross, C.W. Radtke, **C.L. Crofcheck,** S.A. Shearer, and R.L. Hoskinson. 2007. Screening for sugar and ethanol processing characteristics from anatomical fractions of wheat stover. Biomass and Bioenergy, 31(8):585-592.

Hawes, E.A., J.T. Hastings, **C. Crofcheck**, and M.P. Mengüç. 2007. Spectrally selective heating of nanosized particles by surface plasmon resonance and an atomic force microscopy tip. Journal of Quantitative Spectroscopy & Radiative Transfer, 104, 199-207.

Swamy, J.N., **C. Crofcheck**, and M.P. Mengüç. 2007. A Monte Carlo Ray Tracing study of Polarized Light Propagation in Liquid Foams. Journal of Quantitative Spectroscopy & Radiative Transfer, 104, 277-287.

Aslan, M.M., **C. Crofcheck**, D. Tao, and M.P. Mengüç. 2006. Evaluation of Micro-bubble Size and Gas Hold-up in Two-Phase Gas Liquid Columns via Scattered Light Measurements. Journal of Quantitative Spectroscopy & Radiative Transfer, 101, 527-539.

Crofcheck, C., and M.D. Montross. 2006. Evaluation of Fourier Transform Infrared Measurements of Glucose and Xylose in Biomass Hydrolyzate. Applied Engineering in Agriculture, 22(3):415-420.

Crofcheck, C., ***J. Wade***, ***J.N. Swamy***, M.M. Aslan, and M.P. Mengüç. 2005. Effect of Fat and Casein Particles in Milk on the Scattering of Elliptically-Polarized Light. Transactions ASAE, 48(3):1147-1155.

Crofcheck, C., M.D. Montross, A. Berkovich, and R. Andrews. 2005. The Effect of Temperature on the Mild Solvent Extraction of White and Red Oak. Biomass and Bioenergy, 28(6):572-578.

Crofcheck, C., I. Maiti, S. Pattanaik, and M. Jay. 2004. Effect of Ion and Surfactant Choice on the Recovery of a Histidine Tagged Protein from Tobacco Extract Using Foam Fractionation. Applied Biochemistry and Biotechnology, 119(1):79-92.

Crofcheck, C.L. and M.D. Montross. 2004. Effect of Stover Fraction on Glucose Production using Enzymatic Hydrolysis. Translations ASAE, 47(3):841-844.

Carter, S.B., S.E. Nokes, and **C.L. Crofcheck**. 2004. The Influence of Environmental Temperature and Substrate Initial Moisture Content on *Aspergillus niger* Growth and Phytase Production in Solid-State Cultivation. Transactions ASAE, 47(3):945-949.

Montross, M.D. and **C. Crofcheck**. 2004. Effect of Stover Fraction and Storage Method on Glucose Production during Enzymatic Hydrolysis. Bioresource Technology, 92:269-274.

Crofcheck, C. and ***K. Gillette***. 2003. Evaluation of Foam Fractionation Column Scale-Up for Recovering a Model Protein. Transactions ASAE, 46(6):1759-1764.

Crofcheck, C.L., ***M. Loiselle***, J. Weekley, I. Maiti, S. Pattanaik, P.M. Bummer, and M. Jay. 2003. Histidine Tagged Protein Recovery from Tobacco Extract by Foam Fractionation. Biotechnology Progress, 19(2):680-682.

Crofcheck, C.L., F.A. Payne, and M.P. Mengüç. 2002. Characterization of Milk Properties Using a Radiative Transfer Model, Applied Optics, 41(10):2028.

Crofcheck, C.L., F.A. Payne, C.L. Hicks, M.P. Mengüç, and S.E. Nokes. 2002. Fiber Optic Sensor Response to High Levels of Fat in Cream. Transactions ASAE, 45(1):171-178.

Crofcheck, C.L., F.A. Payne, C.L. Hicks, M.P. Mengüç, and S.E. Nokes. 2000. Fiber Optic Sensor Response to Low Levels of Fat in Skim Milk. J. Food Process Engineering, 23:163-175.

Payne, F.A., **C.L. Crofcheck**, S.E. Nokes, and K.C. Kang. 1999. Light Backscatter of Milk Products for Transition Sensing Using Optical Fibers. Trans. ASAE, 42(6):1771-1776.

Crofcheck, C.L., F.A. Payne, and S.E. Nokes. 1999. Predicting the Cutting Time of Cottage Cheese Using Light Backscatter Measurements. Transactions ASAE, 42(4):1039-1045.

Crofcheck, C.L., A.L. Grosvenor, K.W. Anderson, J.K. Lumpp, D.L. Scott, and S. Daunert. 1997. Detecting Biomolecules in Picoliter Vials Using Aequorin Bioluminescence. Analytical Chemistry, 69(23): 4768-4772.

Grosvenor, A.L., **C.L. Crofcheck**, K.W. Anderson, D.L. Scott, and S. Daunert. 1997. Calibration of Micropipets Using the Bioluminescent Protein Aequorin. Analytical Chemistry, 69:15.

Crofcheck, C.L., E.W. Nelson, J.L. Jacobs, and A.B. Scranton. 1995. Temperature-Sensitive Luminescence of Tris (β-diketone) Europium Chelates for Monitoring High-Speed Cationic Photopolymerizations. J. Polymer Science, Polymer Chemistry. 33:1735.

Book Chapters

C. Crofcheck. 2016. Light Scattering Applications in Milk and Dairy Processing in Light Scattering Technology for Food Property, Quality and Safety Assessment, edited by Renfu Lu, CRC Press, Boca Raton, FL.

Montross, M. and **C. Crofcheck**. 2010. Energy Crops for the Production of Biofuels in Thermochemical Conversion of Biomass to Liquid Fuels and Chemicals, edited by Mark Crocker, The Royal Society of Chemistry.

Extension Publications and Materials

Crofcheck, C., ***T. Graham*****,** and M. Montross. 2013. Algae-Based CO_2 Mitigation for Coal-Fired Power Plants. University of Kentucky Cooperative Extension Service AEN-116.

Stombaugh, T., **C. Crofcheck**, and M. Montross. 2006. Biodiesel FAQ. University of Kentucky Cooperative Extension Service AEN-90.

Produced the Kentucky Biodiesel Journey and the Kentucky Ethanol Journey, which are CD-based animated "virtual" tours of biodiesel and ethanol production facilities in Kentucky. Each journey also contains information on why we should use biodiesel/ethanol, what it is, how it is made, and where it is made and sold in Kentucky.

Non-Refereed Conference Papers and Presentations (94 total)

Authors directly supervised are shown in bold italics.

Castro-Islas, Y., B. J. Berron, **C. Crofcheck**, T. J. Barzee. (July 31, 2024). Influence of Lactic Acid Bacteria on Sour Mash Bourbon Fermentations. Podium presentation at the ASABE Annual International Meeting, Anaheim, CA, July 2024.

Sarhan, R., **C. Crofcheck**, B. Berron, T. Barzee. Optimizing a Lab-Scale Protocol for Bourbon Whiskey Fermentations: Comparison of Simultaneous Saccharification and Fermentation and Traditional Mashing Methods. Poster presentation at the ASABE Annual International Meeting, Anaheim, CA, July 2024.

Hockensmith, D., **C. Crofcheck**, T. Barzee. Anaerobic Digestion of Stillage: Comparison of the Biomethane Potential Based on Mash Bill and Distillation Parameters. Poster presentation at the ASABE Annual International Meeting, Omaha, NE, July 2023.

Hockensmith, D., **C. Crofcheck**, T. Barzee. Impact of Physiochemical Characteristics and Distillation Parameters on the Biomethane Potential of Bourbon Stillage. Poster presentation at the ASABE Annual International Meeting, Houston, TX, July 2022.

C. Crofcheck. ABET: A Story from the Trenches. Invited Podium presentation at the ASABE Annual International Meeting, Spokane, WA, July 2017.

Embry, M. and **C. Crofcheck**. Evaluation of white rot fungus as a pretreatment for thermochemical processing of biomass. Poster presentation at the ASABE Annual International Meeting, Spokane, WA, July 2017.

Crofcheck, C., ***C. Zheng***, ***A. Shea***, and M. Crocker. The influence of media ingredients and pH on the growth of *Chloromonas rosae var. psychrophila*. Podium presentation at the ASABE Annual International Meeting, Orlando, FL, July 2016.

Crofcheck, C., ***A. Shea***, M. Crocker, M. Wilson, J. Groppo, and M. Montross. Life cycle assessment on a large scale algae CO_2 mitigation system for a coal-fired power plant. Poster presentation at the ASABE Annual International Meeting, New Orleans, LA, July 2015.

Crofcheck, C., ***X. E,*** S. Nokes, and M. Montross**.** Modeling Mass and Heat Transfer in Baled Lignocellulosic Feedstock During Solid-state Aerobic Fungi Pretreatment and Anaerobic Bacteria Fermentation. Podium presentation at the Annual Institute of Biological Engineering Meeting, Clayton, MO, March 2015.

Crofcheck, C. Utilization of Microalgae for CO_2 Mitigation and the Production of Value-Added Products. Invited podium presentation at the ASABE Annual International Meeting, Montreal, Canada, July 2014.

***Rhea, N.*, C. Crofcheck**, and J. Groppo. Evaluation of sedimentation and vacuum assisted filtration on microalgae with polymeric flocculant addition. Podium presentation at the Annual Institute of Biological Engineering Meeting, Lexington, KY, March 2014.

Crofcheck, C. Utilization of a feedback loop in the evaluation of design reports. Podium presentation at the Annual Institute of Biological Engineering Meeting, Lexington, KY, March 2014.

Amos, K., J. Stork, S. DeBolt, and **C. Crofcheck.** Up regulation of Heat Shock Protein 70A (HSP70A) in *Chlamydomonas reinhardtii* via internal promoter and SSA transformation, Podium presentation at the Annual Institute of Biological Engineering Meeting, Lexington, KY, March 2014.

C. Crofcheck, M. Wilson, A. Placido, R. Andrews, M. Crocker, and J. Groppo. Development of an Algae-Based System for CO_2 Mitigation from Coal-Fired Power Plants. Poster presented at the ASABE Annual International Meeting, Kansas City, MO, July 2013.

***E, X., A. Shea*, C. Crofcheck**, and J. Aurandt. Nutrients recycling strategies for microalgae-based CO_2 bio-mitigation system. Presented at the ASABE Annual International Meeting, Kansas City, MO, July 2013.

***Graham, T.,* C. Crofcheck, *A. Shea*,** M. Montross, M. Crocker, and R. Andrews. Investigation of Media Ingredients and Water Sources for Algae CO_2 Capture at Different Scales to Demonstrate the Correlations Between Lab-scale and Large-scale Growth. Poster presented at the ASABE Annual International Meeting, Kansas City, MO, July 2013.

***Rhea, N.,* C. Crofcheck, *A. Shea*,** J. Groppo, M. Crocker, and R. Andrews. Modeling Flocculation, Sedimentation, and Filtration for Dewatering of Algal Biomass. Poster presented at the ASABE Annual International Meeting, Kansas City, MO, July 2013.

***E, X., A. Shea*, C. Crofcheck**, and J. Aurandt. Nutrients recycling strategies for microalgae-based CO_2 bio-mitigation system. Poster presented at the Annual Institute of Biological Engineering Meeting, Cary, NC, March 2013.

***Graham, T.,* C. Crofcheck, *A. Shea*,** M. Montross, M. Crocker, and R. Andrews. Investigation of Media Ingredients and Water Sources for Algae CO_2 Capture at Different Scales to Demonstrate the Correlations Between Lab-scale and Large-scale Growth. Poster presented at the Annual Institute of Biological Engineering Meeting, Cary, NC, March 2013.

***Rhea, N.,* C. Crofcheck, *A. Shea*,** J. Groppo, M. Crocker, and R. Andrews. Modeling Flocculation, Sedimentation, and Filtration for Dewatering of Algal Biomass. Poster presented at the Annual Institute of Biological Engineering Meeting, Cary, NC, March 2013.

Crofcheck, C., ***X. E, A. Shea***, M. Montross, M. Crocker, and R. Andrews. Influence of media composition and flue gas components on the growth rate of *Chlorella vulgaris* and *Scenedesmus* to be utilized for CO_2 mitigation. Podium presentation at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

***Graham, T.,* C. Crofcheck, *A. Shea*,** M. Montross, M. Crocker, and R. Andrews. Investigation of Media Water Sources for Algae CO_2 Capture at Different Scales to Demonstrate the Correlations Between Lab-scale and Large-scale Growth. Poster presented at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

Hickman, A., T. Mains, M. Ritchie, C. Zheng,* C. Crofcheck,** and ***A. Shea. Real-Time Algae Growth System: A Senior Design Project. Poster presented at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

Short, S.*, C. Crofcheck, *A. Shea, S. DeBolt, and J. Stork. Evaluation of Heat Shock Proteins in the Environmental Stress Responses of *Chlamydomonas reinhardtii*. Poster presented at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

***E, X., A. Shea*, C. Crofcheck**, M. Montross, M. Crocker, R. Andrews, J. Aurandt, and O. Hayden. Incorporation of nutrient recycling and anaerobic digestion in a CO_2 mitigation algae cultivation system. Poster presented at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

***Vance, Z., A. Shea*, C. Crofcheck**, M. Montross, R. Andrews, and M. Crocker. Utilization of algae for TCE Remediation. Poster presented at the Annual Institute of Biological Engineering Meeting, Indianapolis, IN, March 2012.

Crofcheck, C., *A. Shea*, M. Montross, R. Andrews, and M. Crocker. Medium and Growth Optimization for *Scenedesmus* for CO_2 Mitigation of Flue Gas. ASABE Annual International Meeting in Louisville, KY, August 2011.

Crofcheck, C. Utilization of a Design Assignment with a Feedback Loop. ASABE Annual International Meeting in Louisville, KY, August 2011.

***Cassidy, K.,* C. Crofcheck,** M. Montross, and ***A. Shea*.** Evaluating Algal Growth in Different Temperatures. ASABE Annual International Meeting in Louisville, KY, August 2011.

Cassidy, K.,* C. Crofcheck,** M. Montross, A. Shea,*** R. Andrews, M. Crocker, S. Morton, and C. Fisk. Evaluating Algal Growth in Different Temperatures. Annual Institute of Biological Engineering Meeting in Atlanta, GA, March 2011.

***Graham, T., N. Rhea, A. Shea,* C. Crofcheck,** and M. Montross. Evaluation of PBR Material of Construction on the Growth of Algae. Annual Institute of Biological Engineering Meeting in Atlanta, GA, March 2011.

Short, S.,* C. Crofcheck*, A. Shea, S. DeBolt, and J. Stork. Evaluation of Heat Shock Proteins in the Stress Responses of *Chlamydomonas reinhardtii*. Annual Institute of Biological Engineering Meeting in Atlanta, GA, March 2011.

Crofcheck, C., *S. Short*, M. Montross, ***A. Shea***, W. Chen, W. Adams, R. Andrews, M. Crocker, and S. Morton. Optimization of Algal Medium for CO_2 Mitigation from Flue Gas. ASABE Annual International Meeting in Pittsburgh, PA, June 2010.

Cassidy, K.,* C. Crofcheck,** M. Montross, ***A .Shea , W. Chen, W. Adams, R. Andrews, M. Crocker, S. Morton, and C. Fisk. Algal Response to Variations in Temperature. ASABE Annual International Meeting in Pittsburgh, PA, June 2010.

Fisk, C., M. Wilson, A. Placido, S. Morton, R. Andrews, M. Crocker, J. Groppo, **C. Crofcheck,** and M. Montross. Development of an Algae-Based System for CO_2 Mitigation from Coal-Fired Power Plants. ASABE Annual International Meeting in Pittsburgh, PA, June 2010.

Cassidy, K.,* C. Crofcheck,** M. Montross, ***A. Shea , W. Chen, W. Adams, R. Andrews, M. Crocker, S. Morton, and C. Fisk. Algal Response to Variations in Temperature. Annual Institute of Biological Engineering Meeting in Cambridge, MA, March 2010.

Crofcheck, C., M. Montross, ***K. Cassidy*****,** ***A. Kroumov*****,** ***A. Shea*****,** W. Chen, R. Andrews, M. Crocker, S. Morton, C. Fisk, and M. Wilson. Medium Optimization for CO_2 Mitigation from Flue Gas. Annual Institute of Biological Engineering Meeting in Cambridge, MA, March 2010.

Crofcheck, C., M. Montross, ***A. Shea***, W. Chen, W. Adams, ***A. Kroumov***, R. Andrews, M. Crocker, S. Morton, and ***C. Fisk***. Selection of Microalgal Strains and Medium Optimization for CO_2 Mitigation from Flue Gas. ASABE Annual International Meeting in Reno, NV, June 2009.

Crofcheck, **C.**, M. Montross, ***A. Kroumov, A. Shea***, W. Chen, W. Adams, R. Andrews, M. Crocker, S. Morton, C. Fisk, and J. Groppo. Selection of Microalgal Strains and Medium Optimization for CO_2 Mitigation from Flue Gas. Annual Institute of Biological Engineering Meeting in Santa Clara, CA, March 2009.

Fisk, C.A.**, C. Crofcheck,** T. Morgan, M. Crocker, and S.A. Lewis. Catalytic Deoxygenation of Pyrolysis Oils. ASABE Annual International Meeting in Providence, RI, June 2008.

Montross, M.D., **C.L. Crofcheck,** and T.W. Pfeiffer. Cultural Practices Influencing Ethanol Production from Sweet Sorghum in Kentucky. ASABE Annual International Meeting in Providence, RI, June 2008.

Crofcheck, C., ***J. Ferrara***, A. Abadie, and S. Nokes. Biofuels Education: Opportunities and Possibilities. Presented at the International Fuel Ethanol Workshop in Nashville, TN, June 18, 2008 (invited presentation).

Crofcheck, C., ***J.N. Swamy,*** and M.P. Mengüç. Correlation of Process Parameters with Foam Properties in a Foam Fractionation Column Using a Polarized Light Scattering Technique. Annual Institute of Biological Engineering Meeting in Chapel Hill, NC, March 2008.

Fisk, C.A., T. Morgan, M. Crocker, **C. Crofcheck**, and S.A. Lewis. Bio-oil Upgrading Using Platinum Catalysts. Annual Institute of Biological Engineering Meeting in Chapel Hill, NC, March 2008.

Swamy, J.N., **C. Crofcheck**, and M.P. Mengüç. Prediction of Optimum Process Conditions for a Continuous Foam Fractionation Column through In-line Measurement of Foam Properties, ASABE Paper No. 077065, ASABE Annual International Meeting in Minneapolis, MN, July 2007.

Montross, M.D., **C.L. Crofcheck**, and C.D. Lee. Influence of Hybrid on Laboratory Scale Dry Grind Ethanol Production, ASABE Paper No. 076149, ASABE Annual International Meeting in Minneapolis, MN, July 2007.

Shumaker, J., **C. Crofcheck**, M. Crocker, and M. Montross. Transesterification of Various Plant Oils with a Solid Heterogeneous Catalyst, ASABE Paper No. 0724237, ASABE Annual International Meeting in Minneapolis, MN, July 2007.

Fisk, C.**, C. Crofcheck**, M. Crocker, S. Lewis, and J. Storey. A Catalytic Approach to Bio-Oil Upgrading, ASABE Paper No. 076144, ASABE Annual International Meeting in Minneapolis, MN, July 2007.

Crofcheck, C., M. Crocker, ***J. Shumaker***, and M. Montross. Biodiesel Production from Soybean Oil using Calcined Layered Double Hydroxide Catalysts. Annual Institute of Biological Engineering Meeting in St. Louis, MO, March 2007.

***Fisk, C.*, C. Crofcheck,** M. Crocker, J.M. Storey, and S. Lewis. A Catalytic Approach to Bio-Oil Upgrading. Annual Institute of Biological Engineering Meeting in St. Louis, MO, March 2007.

Hawes, E., J.T. Hastings, **C. Crofcheck**, and M.P. Mengüç. The Impact of Melting and Evaporation of Nanosized Particles on Biological Technology. Annual Institute of Biological Engineering Meeting in St. Louis, MO, March 2007.

Crofcheck, C., and S. Nokes. Renewable Energy Workshops for Middle and High School Students, ASABE Paper No. 068042, ASABE Annual International Meeting in Portland, OR, July 2006.

***Fisk, C.*, C. Crofcheck**, M. Crocker, S. Lewis, and J. Storey. Novel Catalytic Approaches for Bio-Oil Upgrading, ASABE Paper No. 066035, ASABE Annual International Meeting in Portland, OR, July 2006.

***Wolanin, M.,* C. Crofcheck,** and R. Andrews. Utilization of Nickel Nanoparticles to Facilitate the Recovery of Histidine-tagged Proteins, ASABE Paper No. 063103, ASABE Annual International Meeting in Portland, OR, July 2006.

Shea, A.P., and **C. Crofcheck.** Foam Fractionation of α-Lactalbumin and β-Lactoglobulin from Whey Solution, ASABE Paper No. 066130, ASABE Annual International Meeting in Portland, OR, July 2006.

***Swamy, J.N.,* C. Crofcheck,** and M.P. Mengüç. Correlation of Foam Properties to the Process Parameters in a Foam Fractionation Column using Polarized Light Scattering, ASABE Paper No. 067075, ASABE Annual Meeting in Portland, OR, July 2006.

***Swamy, J.N.,* C. Crofcheck,** and M.P. Mengüç. Applicability of Polarized Light Scattering to Investigate and Characterize Food Emulsions and Foams, ASABE Paper No. 066060, ASABE Annual Meeting in Portland, OR, July 2006.

***Singh, A.,* C. Crofcheck**, and G. Brion. Sequencing Batch Treatment of Milk House Wastewater, ASABE Paper No. 064197, ASABE Annual International Meeting in Portland, OR, July 2006.

***Shumaker, J.*, C. Crofcheck,** M. Crocker, M. Montross, and A. Tackett. Evaluation of Heterogeneous Catalysts for Improved Biodiesel Production, ASABE Paper No. 066143, ASABE Annual International Meeting in Portland, OR, July 2006.

Hawes, E.A., J.T. Hastings, **C. Crofcheck**, and M.P. Mengüç. Spectrally Selective Heating of Nanosized Particles by Surface Plasmon Resonance and an Atomic Force Microscopy Tip. Presented at Eurotherm78 - Computational Thermal Radiation in Participating Media II, 5-7 April 2006, Poitiers, France.

***Swamy, J.N.,* C. Crofcheck**, and M.P. Mengüç. A Monte Carlo Ray Tracing Study of Polarized Light Propagation in Liquid Foams. Presented at Eurotherm78 - Computational Thermal Radiation in Participating Media II, 5-7 April 2006, Poitiers, France.

Hawes, E.A., J.T. Hastings, **C. Crofcheck**, and M.P. Mengüç. Surface Plasmon Assisted Melting and Fusion of Nanosized Particles: The Underpinnings of Directed Self Assembly. Annual Institute of Biological Engineering Meeting in Tucson, AZ, March 2006.

Fisk, C., **C. Crofcheck**, M. Crocker, S. Lewis, and J. Storey. Novel Catalytic Approaches for Bio-Oil Upgrading. Annual Institute of Biological Engineering Meeting in Tucson, AZ, March 2006.

Crofcheck, C., M. Crocker, ***J. Shumaker***, and M. Montross. Evaluation of Heterogeneous Catalysts for Improved Biodiesel Production. Annual Institute of Biological Engineering Meeting in Tucson, AZ, March 2006.

Crofcheck, C. and J.A. Hestekin. Benefits of Whey Proteins, Presentation No. 381a, American Institute of Chemical Engineers Annual Meeting in Cincinnati, OH, November 2005.

Swamy, J.N., ***A. Shea***, and **C. Crofcheck**. Concentration of Whey Solutions by Foam Fractionation. Presentation No. 381f. American Institute of Chemical Engineers Annual Meeting in Cincinnati, OH, November 2005.

***Swamy, J.N.*, C. Crofcheck**, and M.P. Mengüç. A Monte Carlo Ray Tracing Simulation of Polarized Light Propagation in Liquid Foams: A Preliminary Approach to Foam Characterization. Presentation No. 18a. American Institute of Chemical Engineers Annual Meeting in Cincinnati, OH, November 2005.

***Swamy, J.N.*, C. Crofcheck**, M.P. Mengüç, and M. Aslan. Modeling Foam Properties and Protein Recovery in a Foam Fractionation Column. ASABE Paper No. 057057. ASABE Annual International Meeting in Tampa, FL, July 2005.

Crofcheck, C., R. Gates, S. Workman, M. Montross, H. Xin, B. Steward, S. Mikelson, S. Taylor, and I. Tinôco. Consortium for Sustainable Plant and Animal Production Systems: An Undergraduate Exchange Program. ASABE Paper No. 058015. ASABE Annual International Meeting in Tampa, FL, July 2005.

Wolanin, M. and **C. Crofcheck**. Utilization of Nickel Nanoparticles to Facilitate the Recovery of Histidine-tagged Proteins. ASABE Paper No. 057011. ASABE Annual International Meeting in Tampa, FL, July 2005.

Wells, L. and **C. Crofcheck**. Educational Objectives and Outcomes at the University of Kentucky: Perspectives from a Recently Reviewed Program. ASABE Paper No. 057059. ASABE Annual International Meeting in Tampa, FL, July 2005.

Crofcheck, C. and M. Montross. Comparison of Methods for Glucose and Xylose Quantification. ASABE Paper No. 057049. ASABE Annual International Meeting in Tampa, FL, July 2005.

Crofcheck, C., S. Nokes, M. Montross, and S. McNeill. Virtual and Face-to-Face Tours of Ethanol and Biodiesel Production Facilities in Kentucky. ASABE Paper No. 057010. ASABE Annual International Meeting in Tampa, FL, July 2005.

***Wolanin, M.,* C. Crofcheck,** and R. Andrews. Utilization of Nickel Nanoparticles to Facilitate the Recovery of Histidine-tagged Proteins. Third Annual Innovation & Enterprise Conference in Louisville, KY, March 30, 2005.

Crofcheck, C., M.D. Montross, S. Nokes, and S. McNeill. "Virtual" and Face-to-Face Tours of Ethanol and Biodiesel Production Facilities in Kentucky. Annual Institute of Biological Engineering Meeting in Athens, GA, March 2005.

Crofcheck, C.L. Utilizing Foam Fractionation to Recover a Wide Range of Proteins: From Wastes to Pharmaceutics. ASAE Paper No. 047012. ASAE Annual International Meeting in Ottawa, Canada, July 2004.

Swamy, J.N., **C. Crofcheck**, M. Aslan, and M.P. Mengüç. A Light-Based Sensor to Monitor Bubble Characteristics in a Foam-Fractionation Column. ASAE Paper No. 047013. ASAE Annual International Meeting in Ottawa, Canada, July 2004.

Swamy, J.N., **C. Crofcheck**, M.P. Mengüç, and M. Aslan. Monitoring Bubble Size and Liquid Hold-up in a Foam Fractionation Column. Second Annual Innovation & Enterprise Conference in Louisville, KY. 2004.

Crofcheck, C., ***J. Wade***, M. Jay, P.M. Bummer, I. Maiti, and S. Pattanaik. Improved Recovery of Engineered Pharmaceutical Proteins from Tobacco Extract. Second Annual Innovation & Enterprise Conference in Louisville, KY, 2004.

Derbyshire (Hawes), E.**, C. Crofcheck**, M.D. Montross, A. Berkovich, and R. Andrews. Mild Solvent Extraction of Wood Waste to Produce Pitch. Second Annual Innovation & Enterprise Conference in Louisville, KY, 2004.

Crofcheck, C. and M.D. Montross. Effect of Stover Fraction on Glucose Production using Enzymatic Hydrolysis. Annual Institute of Biological Engineering Meeting in Fayetteville, AR, January 2004.

Crofcheck, C. and M.D. Montross. Effect of Stover Fraction on Glucose Production using Enzymatic Hydrolysis. ASAE Paper No. 036083. ASAE Annual International Meeting in Las Vegas, NV, July 2003.

Crofcheck, C., ***J. Wade***, M. Jay, P.M. Bummer, I. Maiti, and S. Pattanaik. Effect of Ion and Surfactant Choice on the Protein Recovery of Tobacco Extract Using Foam Fractionation. ASAE Paper No. 037011. ASAE Annual International Meeting in Las Vegas, NV, July 2003.

Wade, J.**, C. Crofcheck**, M. Aslan, and M.P. Mengüç. Characterization of Fat and Casein Particles in Milk using Scattering Matrix Elements. ASAE Paper No. 036016. ASAE Annual International Meeting in Las Vegas, NV, July 2003.

Crofcheck, C., M.P. Mengüç, B. Wong, D. Tao, M. Aslan, and R.Vaillon. Development of a Polarized Light Sensor to Monitor Bubble Size and Liquid Hold-up in Foam. ASAE Paper No. 037012. ASAE Annual International Meeting in Las Vegas, NV, July 2003.

Crofcheck, C. and M.D. Montross. Mild Solvent Extraction of Wood Waste. ASAE Paper No. 036019. ASAE Annual International Meeting in Las Vegas, NV, July 2003.

Crofcheck, C., M. Jay, and P.M. Bummer. Recovering Engineered Pharmaceutical Proteins from Tobacco Extract by Foam Fractionation. First Annual Innovation & Enterprise Conference in Lexington, KY, March 5.

Crofcheck, C., ***M. Loiselle***, M. Jay, P.M. Bummer, I. Maiti, and S. Pattanaik. Using Foam Fractionation to Recover Pharmaceutical Proteins from Tobacco Extract. ASAE Paper No. 027032. ASAE Annual International Meeting in Chicago, IL, July 2002.

Crofcheck, C. and ***K. Gillette***. Evaluation of Foam Fractionation Column Scale-up for Recovering a Model Protein. ASAE Paper No. 027003. ASAE Annual International Meeting in Chicago, IL, July 2002.

Gillette, K.S., F.A. Payne, M.C. Danao, and **C.L. Crofcheck**. Light Backscatter Technique for Measurement of Non-Homogenized Fat in Milk using Optical Fibers. ASAE Paper No. 026178. ASAE Annual International Meeting in Chicago, IL, July 2002.

Payne, F.A., K. Gillette, and **C.L. Crofcheck**. Fiber Optic Measurement of Light Extinction Coefficient for Quantifying Milkfat Content in Dairy Products. American Institute of Chemical Engineers Annual International Meeting in Reno, NV.

Crofcheck, C.L., F.A. Payne, and M.P. Mengüç. Effect of Size Distribution on the Light Scattering in Milk Based on a Radiative Transfer Model. ASAE Paper No. 016126. ASAE Annual International Meeting in Sacramento, CA, July 2001.

Payne, F.A., K. Gillette, **C.L. Crofcheck**, and K.C. Kang. Milk Fat Determination by Measurement of Light Backscatter Distribution Using Fiber Optics. ASAE Paper No. 016030. ASAE Annual International Meeting in Sacramento, CA, July 2001.

Crofcheck, C.L., F.A. Payne, and M.P. Mengüç. Characterization of Light Propagation in Milk Using a Radiative Transfer Model. National Heat Transfer Conference in Anaheim, CA, June 2001.

GRADUATE STUDENTS AND COMMITTEES

Received full membership in the Graduate Faculty. February 2005.

Graduate Students (graduated, 16 M.S. and 3 Ph.D. students)

Danielle Hockensmith, *M.S. Biosystems and Agricultural Engineering.* Thesis title: Impact of Physiochemical Characteristics and Distillation Parameters on the Biomethane Potential of Bourbon Stillage. Graduation: May 2023.

Julia Parker, *M.S. Biosystems and Agricultural Engineering.* Thesis title: Lignin Valorization via Reductive Depolymerization Using Promoted Nickel Catalysts and Sub- and Super-Critical Methanol. Graduation: December 2022.

Melody Embry, *M.S. Biosystems and Agricultural Engineering*. Thesis title: Evaluation of White Rot Fungus as a Pretreatment for Thermochemical Processing of Switchgrass. Graduation: August 2018.

Nick Rhea, *M.S. Biosystems and Agricultural Engineering*. Thesis title: Dewatering of Algae by Sedimentation and Filtration with Flocculation. Graduation: August 2016.

Kirtley Amos, M.S. Biosystems and Agricultural Engineering. Thesis title: Up Regulation of Heat Shock Protein 70b (HSP70b) and SSA1 in *Chlamydomonas Reinhardtii* via HSP70A-RBCS2 and PSAD Promoter. Graduation: December 2015.

Caoli Zheng, M.S. Biosystems and Agricultural Engineering. Thesis title: The Influence of Media Nitrogen Concentration and PH on the Growth of *Chloromonas rosae var. psychrophila* Graduation: December 2015.

Xinyi (Abby) E, Ph.D. Biosystems and Agricultural Engineering. Dissertation title: Evaluation of Nutrition Recycling Strategies for Continuous Algae Cultures Fed on CO_2 Emissions from Coal-fired Power Plants. Graduation: December 2013.

***Tabitha Graham*,** M.S. Biosystems and Agricultural Engineering. Thesis title: Evaluation of Optimal Water Source and Necessary Lab Scale Support For a Large Scale Algae Coal-fired Power Plant CO_2 Mitigation System. Graduation: August 2013.

Jennifer Frederick, M.S. Biosystems and Agricultural Engineering. Thesis title: Optimized Separation Method for the Recovery of Bacteria from Food Matrices. Graduation: May 2012.

Sarah Short (co-advisor with Seth DeBolt), M.S. Biosystems and Agricultural Engineering. Thesis title: Evaluation of Heat Shock Proteins in the Stress Responses of *Chlamydomonas reinhardtii*. Graduation: May 2012.

Keelin Cassidy, M.S. Biosystems and Agricultural Engineering. Thesis title: Evaluating Algal Growth in Different Temperatures. Graduation: December 2011.

Juan Rivas, M.S. Biosystems and Agricultural Engineering. Project title: Evaluation of *Chlorella vulgaris* Growth in the Presence and the Absence of Possible Flue Gas Components. Graduation: May 2011.

Jeremy Ferrara, M.S. Biosystems and Agricultural Engineering. Project title: A Four Simultaneous Batch Reactor System Designed for Kinetic Modeling and Optimization of Heterogeneous Catalytic Production of Biodiesel. Graduation: December 2008.

Ellie Hawes (co-advisor with M.P. Mengüç), Ph.D. Biosystems and Agricultural Engineering. Dissertation title: Assembly of 3-Dimensional Nanostructures by Selectively Localized Energy Transfer. Passed Qualifying Exam: July 2005. Graduation: December 2007.

Courtney Fisk, M.S. Biosystems and Agricultural Engineering. Thesis title: Catalytic Upgrading of Pyrolysis Oil from Biomass. Graduation: August 2007.

James Shumaker, M.S. Biosystems and Agricultural Engineering. Thesis title: Improved Heterogeneous Catalyst for Biodiesel Production. Graduation: August 2007.

Janakiraman Swamy (co-advisor with R. Gates), Ph.D. Biosystems and Agricultural Engineering. Dissertation title: Measurement and Characterization of Foam Properties in the Foam Layer of a Foam Fractionation Column for Improved Process Performance. Graduation: May 2007.

Aubrey Shea, M.S. Biosystems and Agricultural Engineering. Thesis title: Concentration of Whey Solutions by Foam Fractionation Graduation: December 2006.

Melinda Wolanin, M.S. Biosystems and Agricultural Engineering. Thesis title: Separation and Recovery of His-tagged Protein using Magnetic Nickel Nanoparticles. Graduation: December 2006.

Graduate Committees

Ryan Sarhan, M.S. Biosystems and Agricultural Engineering. Thesis title: Reusing High Osmotic Strength Water for Sustainable Water Management in Spirits Distilleries. Expected graduation: August 2025

Yosselin Castro Islas, Ph.D. Biosystems and Agricultural Engineering. Dissertation title: Sour Mashing Impacts Fermentation Performance and Product Quality. Expected Graduation: August 2025.

Katherine Ristola, Ph.D. Biosystems and Agricultural Engineering. Dissertation topic: Surface Water Quality Assessment for Central Kentucky Distilleries. Expected Graduation: 2028.

Gary Lopez, Ph.D. Biosystems and Agricultural Engineering. Dissertations title: Sulfur Profiling and Fate Study of Pine Residues for Improved Efficiency During Thermochemical Conversion. Expected Graduation: 2025.

William Brennan, M.S. Mechanical Engineering, Thesis title: Energy and Economic Modeling of Stillage Dewatering Processes in Kentucky Bourbon Distilleries. Graduation date: May 2022

Jameson Hunter, M.S. Biosystems and Agricultural Engineering. Thesis title: Extraction of Micro- and Nano-Plastic Particles from Water Using Hydrophobic Natural Deep Eutectic Solvents. Graduation date: December 2021.

Makua Vin Nnajiofor, M.S. Biosystems and Agricultural Engineering, Thesis title: Characterization and Upgrade of Endocarp Biomass Derived Lignin to Value Added Products. Graduation date: August 2021.

Joseph Woomer, M.S. Biosystems and Agricultural Engineering, Thesis title: Valorization of Proso Millet and Spent Grain for Extruded Snack Development. Graduation date: December 2018.

John Jennings, Ph.D. Chemistry, Dissertation title: Heterogeneous Base Metal Catalyzed Oxidative Depolymerization of Lignin and Lignin Model Compounds. Exam: July 2017. Outside Examiner.

Mizuki Tateno, Ph.D. Horticulture, Dissertation title: Investigation into the Cell Wall and Cellulose Biosynthesis in Model Species and in the C4 Model Plant *Setaria viridis*. Exam: November 2016. Outside Examiner.

Danielle Empson, M.S. Biosystems and Agricultural Engineering, Thesis title: Induction of Cellulase in High Solids Cultivation of *Trichoderma Reesei* for Enhanced Enzymatic Hydrolysis of Lignocellulose. Exam: July 2016. Committee Member.

Abhijit Bhagavatula, Ph.D. Chemical Engineering, Dissertation title: Thermo-chemical Conversion of Coal-biomass Blends: Kinetics Modeling of Pyrolysis Moving Bed Gasification and Stable Carbon-isotope Analysis. Exam: November 2014. Committee Member.

Anne Ware, Ph.D. Chemistry, Dissertation title: Pyrolysis and Catalytic Processes used to Analyze and Convert Biomass into Renewable Fuels. Exam: November 2013. Committee Member and Outside Examiner.

Alicia Modenbach, Ph.D. Biosystems and Agricultural Engineering, Dissertation title: Sodium Hydroxide Pretreatment of Corn Stover and Subsequent Enzymatic Hydrolysis: An Investigation of Yields, Separations and Kinetic Modeling. Exam: July 2013. Committee Member.

Majid Soleimani, Ph.D. Chemical and Biological Engineering, University of Saskatchewan, Canada. Dissertation title: An Integrated Process for Xylitol Production in Free-and-Immobilized –cell Bioconversions from Oat Hull Biomass. Exam: February 2013. Outside Examiner.

Liam Brennan, Ph.D. Biosystems Engineering at University College, Dublin, Ireland. Dissertation title: Development of an In-situ Rapid Assessment Technique for Management of Biofuel-directed Microalgae Production Systems. Exam: October 2012. Outside Examiner.

Molly Craft-Jenkins, M.S. Biosystems and Agricultural Engineering, Thesis title: Development of a Noncontact Sensor for Monitoring Milk Coagulation and Cutting Time Prediction in Cheese Making. Graduation: August 2012. Committee Member.

Maira Amaral, Ph.D. Biosystems and Agricultural Engineering, Dissertation title: Evaluation of Algae Concentration in Manure Based Media. Graduation: May 2012. Committee Member.

Darby Harris, Ph.D. Horticulture, Dissertation title: Molecular and Chemical Dissection of Cellulose Biosynthesis in Plants. Exam: December, 2011. Outside Examiner.

Qingliu Wu, Ph.D., Chemical Engineering, Synthesis and Energy Applications of Oriented Metal Oxide Nanoporous Films. June 2011. Outside Examiner.

Robin Ehrick, Ph.D. Chemistry, Dissertation title: Biomolecules and Materials for Bone Regeneration: Advances, Improvements, and Toxicological Applications. Exam: December 2008. Outside Examiner.

Saurav Datta, Ph.D. Chemical Engineering. Dissertation title: Functionalized Polymeric Membranes for Bioseparation and Biocatalysis. Exam: December 2007. Outside Examiner.

Mehmet Kozan, Ph.D. Mechanical Engineering. Dissertation title: Characterization of Colloidal Nanoparticle Aggregates using Light Scattering Techniques. Exam: November 2007.

Katherine Blair Duguid, M.S. Biosystems and Agricultural Engineering. Thesis title: Mechanical Fractionation of Wheat Stover for Increased Sugar Recovery. Graduation: August 2006.

Nick Coleman, M.S. Biosystems and Agricultural Engineering. Thesis title: The Effects of Growth Medium pH and Reaction Water Activity on the Reduction of Acetophenome by Immobilized Yeast in Hexane. Graduation date: December 2001.

Mary Grace Danao, M.S. Biosystems and Agricultural Engineering. Thesis title: Determining Product Transitions in a Liquid Piping System using a Transmission Sensor. Graduation: December 2001.

Post-doctoral Scholars (past)

Anshu Singh, June 2004-2007. Reducing the Impact of Milk House Wastewater by On-site Treatment.

Melanie Loiselle, February-August 2002. Foam Fractionation of Engineered Proteins from Tobacco Plant Extract.

TEACHING IMPROVEMENT

CELT Workshop: Exploring the Pedagogy of Play, University of Kentucky, April 2024.

CELT Workshop: Designing a Syllabus Students Will Actually Read, University of Kentucky, April 2024.

Setting the Tone & Fostering Inclusion, UK Center for the Enhancement of Learning and Teaching Transforming, August 2022.

Sharing Strategies for Facilitating Community & Belonging, UK Center for the Enhancement of Learning and Teaching Transforming, August 2022.

CAFE's 3rd Annual Intercultural Awareness Day, February 2018.

Undergraduate Education in Engineering Seminar, 2017.

Attended and participated in an invited "experts in teaching" panel at the College of Engineering Faculty Development series, March 2017.

Attended University of Kentucky workshops about turning technologies and Blackboard. 2010.

Attended a teaching workshop sponsored by the University of Kentucky College of Agriculture, August 2007.

Attended the 2005 Southern Region Teaching Workshop, Lexington, KY. Workshops covered service learning and active learning. August 2005.

Attended a seminar sponsored by the College of Agriculture, "Teaching for Critical Thinking" presented by Dr. Rick Rudd, (Associate Professor of Career and Technical Education at the University of Florida). July 2004.

Continuous Quality Improvement for departmental accreditation, Campbellsville, KY. July 15-16, 2003.

Attended a seminar sponsored by the University of Kentucky College of Agriculture, "Active Learning – A Sensory Approach to Opening Minds." March 2003.

Attended a seminar sponsored by the University of Kentucky College of Agriculture, "The Lecture as a Teaching and Learning Method." February 2003.

Attended a teaching enhancement seminar, sponsored by the Teaching and Learning Center, "Formative and Summative Feedback." November 2001.

Attended a teaching enhancement seminar, sponsored by the Teaching and Learning Center, "Strategies and Techniques for Getting Students More Actively Involved." October 2001.

Attended a workshop sponsored by the University of Kentucky College of Agriculture, "Creating a Teaching Portfolio Workshop," September 2001.

LIST OF COURSES TAUGHT

[1] Out of a maximum possible of 5.0 for F16 to present, previously 4.0
[2] Percent of class responsibility
[3] n. e. = not evaluated due to small class size
[4]the University switched to on-line teaching evaluations (Sp 14 to Sp 16)
[5]Distance Learning

Sem.	Course No.	Title	No. of Students	Evaluation Course/Teaching[1]	%[2]
F24	BAE 400	Senior Seminar	16	4.0/4.4	100
F24	AEN 341	Brewing Science & Technology[5]	69	4.7/4.8	100
F24	BAE 542	Biofuels and Bioproducts	12	4.7/4.8	50
F24	BAE 202	Probability and Statistics	22	3.5/3.3	100
Su24	AEN 341	Brewing Science & Technology[5]	12	n.e.[3]	100
Su24	HRT 335	Distillation, Wine & Brewing Science[5]	19	n.e.[3]	100
S24	AEN 341	Brewing Science & Technology[5]	69	4.8/4.9	100
S24	AEN 341	Brewing Science & Technology	34	4.9/4.9	100

Sem.	Course No.	Title	No. of Students	Evaluation Course/Teaching[1]	%[2]
F23	BAE 400	Senior Seminar	12	4.7/5.0	100
F23	AEN 341	Brewing Science & Technology[5]	23	4.8/4.7	100
F23	AEN 341	Brewing Science & Technology	19	4.8/4.8	100
F23	BAE 542	Biofuels and Bioproducts	8	4.6/4.7	50
Su23	AEN 341	Brewing Science & Technology[5]	5	n.e.[3]	100
S23	AEN 341	Brewing Science & Technology[5]	35	4.8/4.8	100
S23	AEN 341	Brewing Science & Technology	35	4.8/4.8	100
S23	BAE 202	Probability and Statistics	13	4.4/4.5	100
F22	AEN 341	Brewing Science & Technology[5]	28	5.0/5.0	100
F22	BAE 400	Senior Seminar	19	4.8/5.0	100
F22	BAE 542	Biofuels and Bioproducts	6	4.8/4.8	50
F22	BAE 750	Design & Analysis of Experiments	7	n.e.[3]	33
Su22	AEN 341	Brewing Science & Technology[5]	2	n.e.[3]	100
S22	BAE 202	Probability and Statistics	14	4.6/4.3	100
S22	AEN 341	Brewing Science & Technology[5]	55	4.7/4.7	100
S22	AEN 341	Brewing Science & Technology	30	5.0/5.0	100
S21	BAE 202	Probability and Statistics	23	3.9/4.0	100
S21	AEN 341	Brewing Science & Technology[5]	49	4.7/4.6	100
F20	BAE 400	Senior Seminar	20	2.9/4.3	100
F20	AEN 341	Brewing Science & Technology[5]	24	4.5/5.0	100
S20	AEN 341	Brewing Science & Technology	37	4.9/4.9	100
S20	AEN 341	Brewing Science & Technology[5]	11	4.8/4.8	100
S19	AEN 341	Brewing Science & Technology	51	5.0/4.9	100
F18	BAE 775	Professional Practices Seminar	8	4.1/4.9	100
S18	AEN 341	Brewing Science & Technology	41	4.9/4.9	100
F 17	BAE 403	Senior Design II	3	n.e.[3]	100
Sp 17	AEN 341	Brewing Science & Technology	32	4.63/4.75	100
Sp 17	BAE 402	Senior Design I	3	n.e.[3]	100
Sp 17	BAE 403	Senior Design II	20	4.25/4.75	50
Sp 17	BAE 202	Probability and Statistics	44	4.21/4.59	100
F 16	BAE 402	Senior Design I	20	4.30/4.70	50
F 16	BAE 403	Senior Design II	9	3.80/4.20	50
Sp 16	AEN 341	Brewing Science & Technology	32	3.73/3.73	100
Sp 16	BAE 402	Senior Design I	9	3.33/3.33	50
Sp 16	BAE 403	Senior Design II	23	2.82/3.18	50
Sp 16	BAE 202	Probability and Statistics	44	3.22/3.44	100
F 15	BAE 402	Senior Design I	23	3.38/3.54	50
F 15	BAE 403	Senior Design II	10	2.25/3.00	50
F 15	BAE 549	Bioprocess Engineering	12	3.33/3.42	50
Sp 15	GEN 300	Brewing Science & Technology	18	4.00/4.00	100
Sp 15	BAE 402	Senior Design I	10	3.33/3.00	50
Sp 15	BAE 403	Senior Design II	17	2.78/2.89	50
Sp 15	BAE 202	Probability and Statistics	34	3.39/3.48	100

Sem.	Course No.	Title	No. of Students	Evaluation Course/Teaching[1]	%[2]
F 14	BAE 402	Senior Design I	17	2.75/3.25	50
Sp 14	BAE 403	Senior Design II	30	3.22/3.11[4]	50
Sp 14	BAE 202	Probability and Statistics	37	2.95/3.30[4]	100
Sp 14	BAE 505	Thermochem. Processing of Biomass	9	n.e.[3]	100
University switched to on-line student evaluations					
F 13	BAE 402	Senior Design I	31	3.8/3.9	50
F 13	BAE 549	Bioprocess Engineering	11	3.0/3.0	100
F 13	BAE 750	Bioprocess Engineering	6	3.8/3.8	100
Sp 13	BAE 599	Thermochem. Processing of Biomass	4	n. e.	100
Sp 13	BAE 403	Senior Design II	9	3.4/3.6	50
Sp 13	BAE 202	Probability and Statistics	56	3.5/3.8	100
F 12	BAE 402	Senior Design I	11	3.7/3.9	50
F 12	BAE 648	Energy and Mass Transfer in BAE	9	3.5/3.3	100
Sp 12	BAE 599	Thermochem. Processing of Biomass	5	n. e.	100
Sp 12	BAE 403	Senior Design II	8	3.9/3.9	50
Sp 12	BAE 202	Probability and Statistics	30	3.7/3.8	100
F 11	BAE 402	Senior Design I	8	4.0/4.0	50
Sp 11	BAE 202	Probability and Statistics	14	3.8/3.9	100
Sp 11	BAE 403	Senior Design II	14	3.1/3.3	50
F 10	BAE 402	Senior Design I	14	3.2/3.6	50
F 10	BAE 648	Energy and Mass Transfer in BAE	8	3.1/2.5	100
Sp 10	BAE 202	Probability and Statistics	9	3.7/3.8	100
Sp 10	BAE 403	Senior Design II	15	3.1/3.0	50
Sp 10	BAE 750	Thermochem. Processing of Biomass	3	n. e.	100
F 09	BAE 402	Senior Design I	15	3.4/3.2	50
F 09	BAE 648	Energy and Mass Transfer in BAE	4	n. e.	100
Sp 09	BAE 202	Probability and Statistics	18	3.4/3.3	100
Sp 09	BAE 403	Senior Design II	9	3.7/3.7	50
Sp 09	BAE 750	Thermochem. Processing of Biomass	2	n. e.	50
F 08	BAE 402	Senior Design I	9	3.4/3.4	50
F 08	BAE 648	Energy and Mass Transfer in BAE	4	n. e.	100
Sp 08	BAE 750	Thermochem. Processing of Biomass	2	n. e.	50
Sp 08	BAE 103	Energy in Biological Systems	26	3.7/3.7	100
Sp 08	BAE 403	Senior Design II	24	3.6/3.5	50
F 07	BAE 402	Senior Design I	24	3.4/3.4	50
F 07	BAE 648	Energy and Mass Transfer in BAE	4	n. e.	100
Sp 07	BAE 202	Probability and Statistics	18	3.2/3.2	100

Sem.	Course No.	Title	No. of Students	Evaluation Course/Teaching[1]	%[2]
F 06	BAE 102	Intro to Biosystems & Ag Engineering	18	3.8/3.9	100
F 06	BAE 648	Energy and Mass Transfer in BAE	12	2.9/3.2	100
Sp 06	BAE 202	Probability and Statistics	18	3.8/3.8	100
F 05	BAE 102	Intro to Biosystems & Ag Engineering	17	3.4/3.6	100
F 05	BAE 750	Analytical Methods for BE	5	4.0/4.0	100
Sp 05	BAE 202	Probability and Statistics	19	3.4/3.4	100
Sp 05	BAE 648	Energy and Mass Transfer in BAE	12	3.6/3.5	50
F 04	EGR 101	Intro to Engineering	23	3.6/3.9	80
F 04	BAE 102	Intro to Biosystems & Ag Engineering	27	3.6/3.7	100
Sp 04	BAE 202	Probability and Statistics	18	3.3/3.6	100
F 03	BAE 658	Instrumentation	11	3.0/2.6	70
Sp 03	BAE 202	Probability and Statistics	22	3.4/3.6	100
F 02	EGR 101	Intro to Engineering	25	3.7/3.9	60
F 01	BAE 202	Probability and Statistics	15	3.0/3.2	100

SERVICE TO STUDENTS

BAE Student Branch, Incoming Advisor, 2002-2003, 2005-2006, 2009-2010; Advisor, 2003-2004, 2006-2007, 2010-2011, 2011-2012; Past Advisor, 2004-2005, 2007-2008, 2012-2013; Co-Advisor, 2017-2018, 2022-present. Assisted undergraduate students with organizing meetings, activities, and fundraising.

Alpha Epsilon, Advisor 2004-2005, 2007-2008, and 2012-2013. Assisted graduate and undergraduate students with organizing meetings, activities, and fundraising.

UK Hiking Club, Faculty Advisor, 2004-2006.

Kappa Kappa Gamma, Faculty Advisor, 2006-2007.

EDUCATIONAL OUTREACH AND RECRUITING EFFORTS

Presenter at 2024 Engineering Dean's Academy recruitment, July 2024.

Women in Engineering Day at UK, hosted by the College of Engineering, October 2023.

ChemCamp at UK, hosted by the Chemistry Department, Summer 2021.

Presenter at Future STEM Professionals Summit, June 2018.

Presenter at the Women in STEM Storytelling event, University of Kentucky, April 2018.

Presenter at the Martin Luther King Center, Lunch and Learn, April 2018.

Presenter at the NCWIT Girls Who Code award banquet, March 2018.

Host for prospective BAE graduate and undergraduate students. Individual attention to each student to discuss curriculum, job possibilities in biosystems and agricultural engineering, and departmental tours. 2001-present.

Women in ASABE Speed Networking, participated as a speed mentor and the annual international ASABE meetings, 2014-2017.

Youth Science Summit, Lexington, KY, June 2017.

Presented a 2-hr workshop entitled "Food Safety, Food Tastey" to high school students in the Diversity in Engineering workshops, College of Engineering, UK, Summer 2015-2017.

Presented a 7-hr workshop entitled "Food Safety, Food Tastey" to female high school students in the Women in Engineering workshops, College of Engineering, UK, Summer 2015-2017.

FFA Science Fair judge at Field Day at UK, April, 2017.

Picadome Elementary STEM Night, February 5, 2017.

Presented a 1-hr workshop entitled "Food Safety, Food Tastey" to middle school aged girls at the Tech Savvy event at Kentucky State University. May 2016.

Yates Elementary Family Science Night, May 5, 2016.

Presented a workshop entitled "Juggling Algae Balls" to middle school aged girls at the Tech Savvy event at Kentucky State University. The workshop included a discussion about food and bioprocess engineering and hands on activities such as making algae balls, making candy balls, looking at algae under a microscope, and seeing what an algae photobioreactor looks like. May 2014.

Presented a workshop entitled "Juggling Algae Balls" to middle school aged girls at the Girl Scout GEMS event (Girls Enjoying Math and Science). November 2012, 2013.

Midwest Regional ASAE Rally 2013. The rally was hosted by our BAE student branch. I was involved with planning, organizing, and executing the entire event. Over 40 students from other BAE departments in the Midwest visited UK for a two-day event, which included industry tours, speakers, and networking.

Gave departmental tours for 4-H students from across the state, Fall 2012.

Presented the table top algae photobioreactor at the state Science, Technology, and Leadership Program (STLP) convention for high and middle school students, November 2012.

Attended the STEM Symposium Presented "CO_2 Mitigation using Algae" at the Fayette County District Science Fair Expo. February, 2012.

Presented "Grow your own energy" at the UK Energy Fair. Fourth graders from four different local schools visited and heard dozens of presentations. March 2012.

One of several instructors for a Biofuels Short Course with 90 participants from various backgrounds, 2008 and 2010.

Led a weekly program focused on science for 4^{th} graders in a local afterschool program. Fall 2008.

Mentor for a student from Fayette County, KY: Math, Science, and Technology Center. 2007-2008.

Taught a four-hour lecture as a part of NRC 320 Data Collection Techniques which focused on biomass for fuel and chemical production. UK Research and Education Center, Princeton, KY, 2007.

Engineering Science Program demonstration leader. Organized and led a "real-life" engineering design demonstration for high school students interested in engineering. June 2004 and 2006.

Southeast Regional ASABE Rally 2006. The rally was hosted by our student branch. I was involved with planning, organizing, and executing the entire event. Over 60 students from other BAE departments in the Southeast visited UK for a two-day event, which included industry tours, speakers, and networking.

Train-the-trainer for three 4-H agents focused on Heat and Heating. April 2006.

Presented a workshop entitled "Grow Your Own Energy" at the 2006 Girl Scout GEMS (Girls Enjoying Math and Science) Activity. March 2006.

DOE NASLGUC 4-H meeting in Denver, CO. Helping to improving energy materials developed by the National Energy Education Development program especially for 4-H students. December 2005.

Presented BAE materials at the Science, Technology, and Leadership Program (STLP) showcase. November 2005.

Presented at the University of Kentucky Tracey Farmer Center for Environmental Education and NEED's AWAKE Energy Professional Development Workshop for grade school science teachers across the commonwealth. July 2005.

Midwest Regional ASAE Rally 2005. The rally was hosted by our BAE student branch. I was involved with planning, organizing, and executing the entire event. Over 40 students from other BAE departments in the Midwest visited UK for a two-day event, which included industry tours, speakers, and networking.

EGR 101 BAE Departmental Presentation. 2002, 2003, 2004, 2005.

Presented "What does a Food Engineer Do?" at Russell Cave Elementary, October 2005.

Women in Engineering Career Day tour leader. Facilitated tours of the Environmental Research and Teaching Laboratory for female high school students from across Kentucky. February 2005.

Girls in Science Mentor. Mentor for two female middle school students, which involved meeting with them in the summer and communicating by email throughout the year. 2003-2005

Presented "What does a Food Engineer Do?" at a Versailles, KY Cub Scout Meeting. April 2003.

Participated in the University of Kentucky College of Agriculture Ag Round-Up. Assisted with departmental booth and gave tours of the department to FFA students. 2001, 2002, 2003.

Garrard County High School Tour. Presented departmental research overview for over 30 high school students. April 2003.

Assisted with departmental booth at the Home and Garden Show in Lexington, KY. 2002.

Judge for an elementary school science fair at Southern Elementary, Lexington, KY. 2002.

Assisted with departmental booth at the KY State Fair. Summer 2001.

Judge for Engineering Day for the East and West Jessamine County High School. Judged student competitions at local high school, over 100 students. December 2001.

UK Science and Math in Agriculture Sophomore Honorary (SMASH) Faculty Leader. Organized and led "hands-on" demonstrations for high school students interested in math and science. July 2001.

Gave tours to East and West Jessamine County Engineering Club. Presented departmental research overview to over 30 high school students. October 2001.

SERVICE

Department

Student Recruitment Committee, 2001-2005, chair 2004-2006, 2009-2011, 2014-present.

Director of Undergraduate Studies, 2011-2017.
Undergraduate Teaching and Curriculum Committee, 2002 to present, chair 2006-2011.
Alumni and Development Committee, 2001-2006, 2011-2012, 2014-2018.
Faculty Promotion and Tenure Committee, 2014-2018.
Social Committee, 2013-2014.
Seminar Committee, chair 2002-2003, 2013-2014.
Web Committee, chair 2002-2003. Created committee, initiated revision of departmental web page, and assisted with the revisions.
Updated the Graduate Student Handbook and published it as a web-based document, 2001.

College of Agriculture, Food and the Environment

Undergraduate Council, 2014-2017
APT Committee, 2015-2017
Graduate Student Awards Committee, Gamma Sigma Delta, 2005.
Reviewed Precision Agriculture Special Grant, 2004.
Participation in the Natural Products Alliance, 2003-2005.

Lewis Honors College

Fifteen Lewis Lecturer Search Committees, 2018-2021
DEI Committee, 2018-2021
Merit Weekend Committee, 2018-2021
Lewis Launch Committee, 2018-2021

College of Engineering

Engineering Faculty Advisory Council, 2022-present
DataBeam professorship and the James R. Boyd professorship selection committee, 2024. Gill Professorship selection committee, 2022
DEI Committee, 2020-present
Teaching Innovation Study Group, leader, 2017-2018.
Director of Undergraduate Studies Committee, 2011-2017.
First Year Engineering Planning Committee, 2015-2016.

University

Graduate Council, 2021-2022.
Director of the Chellgren Program search committee, 2022
Lexington Herald-Leader Fellowship Reviewer, 2017
University Senate, Fall 2017.

Undergraduate Council, 2017-2018.
Graduate Council Committee on Fellowships and Traineeships - Life Sciences Panel, 2017-2020.
Physical & Engineering Sciences Area Advisory Committee, 2017-2019.
Intellectual Property Committee, 2011-present, chair 2016-present.
Sturgill Award Selection Committee, 2015
Graduate Council, 2013-2014.
Curriculum Committee, General Education Reform, Science Inquiry, 2009.
Instructional Computing Subcommittee, 2004-2010.
Member of the Graduate Council (as a Ph.D. student), 2000-2001.

STEM Profession

Co-chair of the Kentucky Girls STEM Collaborative, 2011-present.
State Leader, Million Women Mentoring, 2016-present.
#IAmAWomanInSTEM, 2018-present

Professional Societies

American Society of Agricultural and Biological Engineers (ASABE), member since 1998.
Nominations Committee, 2014.
Biological Engineering (BE) division, chair 2005-2006.
BE division, vice-chair 2004-2005.
BE division, program chair 2004-2005.
ASABE Membership Development Council, 2003-2005.
BE-28, Bioconversion and Bioprocesses, secretary 2001-2002, chair 2002-2004.
BE-21, Applications in Biological Engineering, secretary 2002-2004, chair 2004-2005.
BE-25, Biological Engineering Education, member 2001-2003, secretary 2003-2005.
FPE-703, Food Processing, member 2004-2013.
FPE-709, Biomass Energy & Industrial Products, member 2004-2013.
ED-203, Undergraduate & Graduate Instruction, member 2010-2012.
ED-211 Undergraduate Engineering Program & Instructional Chairs, member 2013-2015.
Co-sponsor for the revision of ASABE standard S593: "Terminology and Definitions for Biomass Production, Harvesting and Collection, Storage, Processing, Conversion and Utilization."

Institute of Biological Engineering (IBE), 2000-2015.
IBE Councilor, 2004-2006, 2006-2008.
IBE Membership Committee, chair, 2004-2006.
IBE Program Chair, 2006-2007; 2011-2012, 2013-2014.
IBE Treasurer, 2007-2009.
IBE Meetings Council, 2010-2011.
IBE President, 2013.

Manuscript and Proposal Reviews

Journal of Renewable Energy (associate editor, 2 years)
Journal of Biological Engineering (associate editor, 2 years)
Algal Research
Cereal Chemistry
Industrial & Engineering Chemistry Research

Transactions ASABE
Applied Catalysis B: Environmental
Chemical Engineering and Processing
Biochemical Engineering Journal
Biological Engineering
Applied Biochemistry and Biotechnology
Separation and Purification Technology
Journal of Food Science
Biodegradation
Journal of the American Oil Chemists Society
Energy & Fuels
Journal of Agricultural Engineering and Biotechnology
Natural Science and Engineering Research Council of Canada proposal
USDA/DOE Biomass R&D proposals
USDA-SBIR proposals
Panel member for the NSF-SBIR program
Panel member for the REE-NIFA program

PROFESSIONAL DEVELOPMENT EVENTS

Emotional Intelligence 2.0, presented by UK HR, December 2017.

Lunch & Learn, sponsored by CAFE Faculty Council, presented by Ann Bassoni, of the UK Office of Work + Life, October 2017.

Invited Presentations

Presented, "Biodiesel Resources at UK," at the Introduction to Biodiesel Workshop, Division of Compliance Assistance, Environmental Assistance Branch, Frankfort, KY, July 2011.

Presented, "Current Opportunities in Bioenergy and Biomass Utilization," at the 64th Annual Meeting of the Southern Legislative Conference in Charleston, SC. July 2010.

Presented at the International Fuel Ethanol Workshop. Presentation title: Biofuels Education Opportunities and Possibilities. Nashville, TN. June 2009.

Presented at the Kentucky Girls STEM Kick Off Conference, May 2008.

Presented at the 2nd Annual Alltech & Transylvania University Lecture Series, Science Made Simple. The presentation focused on Green Viability: Is the use of biofuels sustainable in Kentucky Lexington, KY. March 2008.

Presented at the Kentucky Rural Energy Consortium Quarterly Meeting. The presentation focused on our current research efforts to develop a new heterogeneous catalyst for the production of biodiesel. June 2006.

Presented to the Kentucky Legislation Energy Sub-Committee. The presentation focused on the status of biodiesel production in Kentucky and presented the Kentucky Biodiesel Journey. August 2005.

Presented the Kentucky Biodiesel Journey at the Biodiesel Showcase. Over 100 attendants, including several state officials. February 2005.

Professional Meetings Attended

2022 NSF EPSCoR Education, Outreach, and Diversity (EOD) Isle of Palms, SC.
2022 ASABE Annual Meeting, Houston, TX
2021 National Collegiate Honors Council Annual Meeting, Orlando, FL
2019 Honors Education at Research Universities Conference, Salt Lake City, UT
2019 ASABE Annual Meeting, Boston, MA
2017 ASABE Annual Meeting, Spokane, WA
2016 ASABE Annual Meeting, Orlando, FL
2015 ASABE Annual Meeting, New Orleans, LA
2015 IBE Annual Meeting, Clayton, MO
2014 ASABE Annual Meeting, Montreal, Canada
2014 IBE Annual Meeting, Lexington, KY
2013 ASABE Annual Meeting, Kansas City, MO
2013 IBE Annual Meeting, Cary, NC
2012 ASABE Annual Meeting, Dallas, TX
2012 IBE Annual Meeting, Indianapolis, IN
2011 ASABE Annual Meeting, Louisville, KY
2011 IBE Annual Meeting, Atlanta, GA
2010 ASABE Annual Meeting, Pittsburg, PA
2010 IBE Annual Meeting, Cambridge, MA
2009 ASABE Annual Meeting, Reno, NV
2009 IBE Annual Meeting, Santa Clara, CA
2008 ASABE Annual Meeting, Providence, RI
2008 IBE Annual Meeting, Chapel Hill, NC
2007 ASABE Annual Meeting, Minneapolis, MN
2007 IBE Annual Meeting, St. Louis, MO
2006 ASABE Annual Meeting, Portland, OR
2006 IBE Annual Meeting, Tucson, AZ
2005 AIChE Annual International Meeting, Cincinnati, OH
2005 ASAE Annual International Meeting, Tampa, FL
2005 IBE Annual Meeting, Athens, GA
2004 ASAE Annual International Meeting, Ottawa, Canada
2004 IBE Annual Meeting, Fayetteville, AR
2003 ASAE Annual International Meeting, Las Vegas, NV
2002 ASAE Annual International Meeting, Chicago, IL
2002 AIChE Annual International Meeting, Indianapolis, IN
2001 ASME National Heat Transfer Meeting, Anaheim, CA
2001 ASAE International Meeting, Sacramento, CA
2001 IBE Annual Meeting, Sacramento, CA

Other Meetings Attended

KY-NSF-EPSCoR Diversity Workshop, organizer, February 2018.

KY-NSF-EPSCoR Leadership Workshop - MBPT, leader and organizer, August 2017.

KY-NSF-EPSCoR Mentoring Workshop, participator and organizer, August 2016.

S-1041 Science and Engineering for a Biobased Industry and Economy, Western Regional Research Center, ARS, USDA, Albany, CA, August 2016.

S-1041 Science and Engineering for a Biobased Industry and Economy, Midwest Regional Research Center, ARS, USDA, Wooster, OH, August 2015.

The 2012 Public and Land-Grant Conference on Energy Challenges, Columbus, OH, April 2012.

STEM Symposium: Accelerating STEM Collaborations by Fusing Expertise, February, 2012.

Energizing Kentucky, 2008.

KREC Quarterly Meetings, 2005-2007.

Energy Summit, Frankfort Kentucky, January 2006.

Energy Sub-Committee, August 2005.

Owensboro Grain, Owensboro, KY. Toured facilities and discussed collaborations, July 2005.

Commonwealth Agri-Energy, Hopkinsville, KY. Toured facilities and discussed collaborations. June 2004, May 2005, January 2006.

S-1007 Regional Meeting at University of Tennessee and Oak Ridge National Laboratory, September 2005.

Biodiesel Showcase, February 2005.

Griffin Industries, Butler, KY. Toured facilities and discussed collaborations, September 2004, May 2005.

S-1007 Regional Meeting at NREL, Golden, CO, September 2004.

Traveled to Universidade Federal de Viçosa in Brazil. Meeting with project directors and prospective students for the US-Brazil Higher Education Exchange Program. March 2004.

US-Brazil Higher Education Consortia Conference (FIPSE/CAPES), Miami, FL, October 2003.

S-1007 Regional Meeting at the USDA, Washington, DC, September 2003.

Visited Dr. Robert Tanner's laboratory at Vanderbilt University, Nashville, TN, August 2002. Toured the facilities and discussed possible future collaboration.

Tour of Large Scale Biology, Owensboro, KY, 2001.

New Faculty Bus Tour, Toured various locations across Kentucky. June 2001.

University Training

Emotional Intelligence 2.0 (Virtual), June 2024
The Essential Leader Program, complete April 2023
Facing the Challenge of Change, April 2023
Managing Staff Conflict, April 2023
Group Problem Solving, arch 2023
Generations in the Workplace, February 2023
Coaching and Feedback, December 2022
From Deciding To Doing, November 2022

Communicating Across Cultures, November 2022
Teamwork in a Changing Workplace, November 2022
Communicating With Success, November 2022
Thinking Critically, October 2022
What to do About Bad Attitude Behaviors, September 2022
Leading Effective Teams, September 2022
Developing a Winning Image, August 2022
Building a Climate of Trust, August 2022
University SuperVision Program Complete, August 2022
SV Supervisor Toolkit, August 2022
SV Managing a Safe Workplace, August 2022
SV Managing a Safe Workplace, August 2022
SV Fundamentals of Diversity, August 2022
SV Americans with Disabilities Act, August 2022
SV HR Policies and Procedures, August 2022
Presentation Practice, August 2022
Basics of Diversity, August 2022
SV Key Skills for Delegation, August 2022
SV Compensation, August 2022
Meeting Focus, August 2022
Effective Business Writing, August 2022
Basics of Leadership, July 2022
SV Employee Coaching and Development, July 2022
Personality Differences, June 2022
SV Preventing Discrimination and Harassment, June 2022
SV Creating Effective Teams, May 2022
Understanding Unconscious Bias, October 2020
SV Corrective Action, February 2020
SV Hiring and Interviewing, January 2020
SV Performance Evaluation, January 2020

Workshops Attended

Unconscious Bias Training for Honors College search Committee, 2022

National Collegiate Honors Council Annual Meeting, Orlando, FL, 2021

Office of the Vice President of Research's Lunch and Learn series, "Secrets of Early Career Success", 2021

Chairs' Academy I and II, 2018-2019

Faculty Supervisor Series: Fostering an Effective Team Environment, 2018

Re-Thinking Faculty Mentoring Workshop, 2018

KY-NSF-EPSCoR Diversity Workshop, organizer, February 2018

University of Kentucky Experienced Leader Academy, 2017-2018

Academic Leadership Academy, 2017

Attended University of Kentucky unintentional bias training, 2017

KY-NSF-EPSCoR Leadership Workshop - MBPT, leader and organizer, August 2017

Emotional Intelligence 2.0, presented by UK HR, December 2017

Lunch & Learn, sponsored by CAFE Faculty Council, presented by Ann Bassoni, of the UK Office of Work + Life, October 2017

University of Kentucky Experienced Leader Academy, 2017-2018

Academic Leadership Academy, 2017

Attended University of Kentucky unintentional bias training, 2017

Circles of Power. A Leadership Program for Women Faculty. 2006-2007.

President's Commission on Women sponsored Promotion and Tenure at UK, 2005.

Ag. Faculty Council workshop for promotion and tenure, January 2005.

University of Kentucky Promotion and Tenure Workshop, October 2003.

College of Agriculture Grants Workshop, University of Kentucky, March 2003.

USDA/CSREES Grants Workshop, Minneapolis, MN, September 2002.