

# Alicia Abadie Modenbach, Ph.D., P.E.

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## Education

**Doctor of Philosophy**, Biosystems and Agricultural Engineering, University of Kentucky, Lexington, KY, August 2008-August 2013

Dissertation: *Sodium Hydroxide Pretreatment of Corn Stover and Subsequent Enzymatic Hydrolysis: An Investigation of Yields, Kinetic Modeling and Glucose Recovery.*

Advisor: Dr. Sue E. Nokes

GPA: 3.955/4.0 (Overall), 4.0/4.0 (In doctoral program)

**Master of Science**, Biosystems and Agricultural Engineering, University of Kentucky, Lexington, KY, August 2006-August 2008

Thesis: *Quantifying Cellulase in High Solids Environments.*

Advisor: Dr. Sue E. Nokes

GPA: 3.889/4.0

**Bachelor of Science**, Biological and Agricultural Engineering, Louisiana State University, A&M, Baton Rouge, LA, August 2002-May 2006

Overall GPA: 3.834/4.0, GPA in Major: 4.0/4.0

Graduated *Magna Cum Laude*

## Certification

Professional Engineer (PE), State of Kentucky (License #32841, June 23, 2017)

Engineer-In-Training, State of Kentucky (Certificate No. 13095, June 15, 2007)

## Professional Experience

**Lecturer**, Department of Biosystems and Agricultural Engineering, University of Kentucky (September 2016-Present)

- DOE: 40% teaching, 50% advising of BAE and TSM undergraduate students, 10% service

**Engineer Associate for Academics**, Department of Biosystems and Agricultural Engineering, University of Kentucky (February 2014-August 2016)

- Advised Biosystems Engineering students and Technical Systems Management students on coursework, internships, and professional development activities
- Attended recruitment events and met with potential students for both the College of Engineering and College of Agriculture, Food and Environment

- Assisted with Senior Design Capstone courses, which included providing feedback on design reports, providing lecture content, attending weekly meetings with design groups, assisting with administrative tasks associated with this course
- Assisted with departmental review/accreditation assignments
- Supervised undergraduate student workers in lab setting
- Taught 2 courses per year (Primary instructor for BAE 102 Introduction to Biosystems Engineering and BAE 503 Fundamentals of Biorenewable Resources and Co-instructor for BAE 103 Energy in Biological Systems)
- Assisted in development of Technical Systems Management program

**Post-Doctoral Scholar**, Department of Biosystems and Agricultural Engineering, University of Kentucky (August 2013-January 2014)

- Investigated the pretreatment and enzymatic hydrolysis unit steps of the lignocellulosic conversion process

**Graduate Research Assistant**, Department of Biosystems and Agricultural Engineering, University of Kentucky (August 2011-July 2013)

- Developed, conducted and analyzed experiments pertaining to various aspects of the lignocellulose conversion process, specifically the pretreatment and enzymatic hydrolysis unit steps
- Collaborated with a multi-disciplinary team to achieve common research objectives concerning the use of novel materials in the separation of fermentable sugars from solution
- Delivered presentations to regional, national and international audiences regarding results obtained from lignocellulose conversion and sugar separation experiments
- Authored multiple comprehensive refereed review articles on topics pertaining to the use of high solids loadings in pretreatment and enzymatic hydrolysis unit operations and the use of sodium hydroxide as a pretreatment reagent

**National Science Foundation Fellow**, Department of Biosystems and Agricultural Engineering, University of Kentucky (August 2008-August 2011)

- Taught (as a Teaching Assistant) first-year level students Excel in the recitation section of Introduction to Biosystems and Agricultural Engineering for two semesters
- Devised and implemented learning objectives, lesson plans and activities to meet goals
- Delivered high quality instruction to students which has been consistently met with positive feedback by students and faculty
- Supervised undergraduate and high school students performing independent laboratory projects
- Awarded tuition and a \$30,000 annual stipend

**Graduate Research Assistant**, Department of Biosystems and Agricultural Engineering, University of Kentucky (August 2006-August 2008)

- Collaborated with faculty from three universities and assisted in the development of new courses on the Fundamentals of Biorenewable Resources and Biofuels to promote the idea of distance-learning
- Performed and analyzed experiments pertaining to the quantification of cellulolytic enzymes in high solids environments

**Undergraduate Research Assistant**, Department of Biological and Agricultural Engineering, Louisiana State University (June 2003-July 2006)

- Assisted with site visits and inspections of area playgrounds for the LSU Community Playground Project
- Investigated the impact of construction materials on playground design
- Coordinated participant information and communications, distributed survey and collected data from female faculty in the biological and agricultural engineering discipline
- Researched and assisted with studies regarding the extraction of compounds found in rice bran for potential nutraceutical use

## Refereed Publications

1. **Modenbach, A.A.**, Peterson, M. 2021. Lessons Learned from a Covid Capstone. ASEE Conference Proceedings. *Under review*.
2. **Modenbach, A.A.**, Nokes, S.E. 2017. Transitioning students into BAE from a common-first year engineering curriculum – A work in progress. ASEE Conference Proceedings.
3. **Modenbach, A.A.**, Nokes, S.E., Montross, M.D., Knutson, B.L. 2017. Towards biochemical conversion of lignocellulose on-farm: Pretreatment and hydrolysis of corn stover in-situ. Transactions of the ASABE. 60(4), 1024-1032. doi: 10.13031/trans.12069.
4. **Modenbach, A.A.**, Nokes, S.E. 2014. Effects of sodium hydroxide pretreatment on structural components of biomass. Transactions of the ASABE. 57(4): 1187-1198.
5. **Modenbach, A.A.**, Nokes, S.E. 2013. Enzymatic hydrolysis of biomass at high-solids loadings – A review. Biomass and Bioenergy. 56: 526-544.
6. **Modenbach, A.A.**, Nokes, S.E. 2012. The use of high-solids loadings in biomass pretreatment – A review. Biotechnology and Bioengineering. 109(6): 1430-1442.
7. **Abadie, A.**, Christy, A., Jones, J., Wang, J., Lima, M. 2008. Longitudinal survey of female faculty in biological and agricultural engineering. Transactions of the ASABE. 52(4): 1397-1405.
8. Schramm, R., **Abadie, A.**, Hua, N., Xu, Z., Lima, M. 2007. Fractionation of the rice bran layer and quantification of vitamin E, oryzanol, protein, and rice bran saccharide. Journal of Biological Engineering. 1:9.

## Other Publications

1. **Modenbach, A.A.** 2019, September/October. Designing Solutions and Building Confidence. Resource: Engineering and Technology for a Sustainable World. 26(5): 13.
2. Akera, A., Cheville, A., Cutler, S., Estell, J., Goodman, K.,...**Modenbach, A.**,...Tranquillo, J. (Eds.) 2019. ASEE Conference Playbook: Co-Created Sessions from the ASEE 2019 Townhall Session [PDF document]. Retrieved from [http://www.asee.org/documents/conferences/annual/2020/ASEE\\_Conference\\_Playbook\\_Version\\_1.0.pdf](http://www.asee.org/documents/conferences/annual/2020/ASEE_Conference_Playbook_Version_1.0.pdf)

## Research and Funding

1. **Modenbach, A.A.** *Sodium Hydroxide Pretreatment of Corn Stover and Subsequent Enzymatic Hydrolysis: An Investigation of Yields, Kinetic Modeling and Glucose Recovery.* Dissertation. 2008-2013.
2. **Abadie, A.** *Quantifying Cellulase in High Solids Environments.* Thesis. 2006-2008.
3. **Abadie, A.,** Jones, J., Lima, M. *Survey of Women Faculty in Agricultural and Biological Engineering.* 2005-2006.
4. **Abadie, A.,** Qureshi, T., Lima, M. Environmental Protection Agency (EPA) P3 Award Competition. *Minimizing the Environmental Impact of Construction Materials in Playground Design.* **\$10,000.** 2005-2006.
5. **Abadie, A.,** Assad, J., Duvernay, W., Higgins, M. College of Agriculture Undergraduate Research Grant. *The Design of a Continuous Magnetic Nanoparticle Separation and Collection System.* **\$800.** 2005-2006.
6. **Abadie, A.** College of Agriculture Undergraduate Research Grant. *The Quantification and Extraction of an Anti-tumor Compound from Rice Bran.* **\$1,000.** 2004-2005.

## Teaching and Teaching Development

**BAE 775 Professional Practices Seminar**

**Spring 2020**

**Faculty Fellows, Cohort 7**

**Spring 2017-Fall 2017**

**BAE 200 Principles of Biosystems Engineering,**

**Fall 2016-Present**

- *Course Development*

*Fall 2016-Fall 2017*

Developed content for new course for sophomore Biosystems Engineering students

- *Instruction*

*Fall 2017-Present*

Provided instruction and hands-on learning opportunities for 98 students (3 semesters)

**BAE 103 Energy in Biological Systems, Co-Instructor**

**Spring 2015-Spring 2016**

Responsible for setting up and supervising lab activities for approximately 130 students and 4 TAs (over 2 semesters)

**BAE 402/403 Biosystems Engineering Design I and II**

**Spring 2014-Present**

- *Instructor*

*Spring 2019-Present*

BAE 403 Spring 2019 – 35 students (9 teams)

BAE 402 Fall 2019 – 26 students (7 teams)

BAE 402 Fall 2020 – 25 students (7 teams)

- *Advisor*

*Fall 2016-Spring 2017*

Advised Pre-Med Senior Design Team, Development of support system for female equestrian riders to promote breast health during riding activities, Fall 2016 and Spring 2017, 4 students

- *Reviewer*

*Spring 2014-Spring 2017*

Reviewed and provided feedback to student teams on all quarterly reports

**BAE 400 Senior Seminar, Co-Instructor**

**Fall 2013**

**BAE 503 Fundamentals of Biorenewable Resources,  
Instructor**

**Spring 2013-Spring 2014**

**Laboratory Supervisor**

**Summer 2009-Fall 2015**

Supervised 8 undergraduate and high school students working on independent research projects

**BAE 102 Introduction to Biosystems Engineering**

**Fall 2008-Fall 2015**

• *Instructor*

*Fall 2014-Fall 2015*

Provided instruction and hands-on learning opportunities for 135 students (2 semesters)

• *Co-Instructor*

*Fall 2013*

Assisted with teaching, grading and preparing course material for 51 students

• *Teaching Assistant*

*Fall 2008-Fall 2010*

Assisted with teaching, grading and preparing course material, including leading a lab section in Fall 2010 that introduced EXCEL to freshmen BAE students (87 students over 3 semesters)

**MUS 4250 Tiger Marching Band, Co-Section Leader**

**Fall 2005**

Provided instruction and direction for the approximately 30 members of the clarinet section

Semester	Position	Number of Students	Response Rate	Evaluation – Individual <sup>1</sup>	Evaluation – Departmental <sup>1</sup>
<b>BAE 102 Introduction to Biosystems Engineering</b>					
Fall 2015	Instructor	31	83.9%	3.00	3.16
		39	82.1%	3.09	
Fall 2014	Instructor	31	67.7%	2.9	3.47
		32	65.6%	3.0	
Fall 2013	Co-Instructor	51	-	-	-
Fall 2010	Teaching Assistant	52	-	-	-
		(27 in lab)	-	-	-
Fall 2009	Teaching Assistant	13	-	-	-
Fall 2008	Teaching Assistant	21	-	-	-
<b>BAE 103 Energy in Biological Systems</b>					
Spring 2016	Co-Instructor	32	46.9%	3.53	3.47
		33	54.6%	3.50	
Spring 2015	Co-Instructor		-	-	-
<b>BAE 200 Principles of Biosystems Engineering</b>					
Fall 2020	Instructor	27			
Fall 2019	Instructor	30	36.7%	4.5	4.4
Fall 2018	Instructor	29	65.5%	4.5	4.4
Fall 2017	Instructor	39	100%	3.0	4.3
<b>BAE 400 Senior Seminar</b>					
Fall 2013	Co-Instructor	30	-	-	-
<b>BAE 402 Biosystems Engineering Design I</b>					
Fall 2020	Co-Instructor	25			
Fall 2019	Co-Instructor	26	42.3%	4.2	4.4
<b>BAE 403 Biosystems Engineering Design II</b>					
Spring 2021	Co-Instructor	25			
Spring 2020*	Co-Instructor	26	30.8%	4.4	4.5
Spring 2019	Co-Instructor	35	48.6%	4.6	4.4
<b>BAE 503 Fundamentals of Biorenewable Resources</b>					
Spring 2014	Instructor	6 (UG + G) <sup>2</sup>	-	-	-
Spring 2013	Instructor	12 (UG + G)	-	-	-
<b>BAE 775 Professional Practices Seminar</b>					
Spring 2020*	Instructor	13	-	-	-
<b>Laboratory Supervision<sup>3</sup></b>					
Summer 2009- Fall 2014	Supervisor	8	-	-	-
<b>MUS 4250 Tiger Marching Band</b>					
Fall 2005	Co-Section Leader	30	-	-	-

<sup>1</sup>Quality of Teaching, based on a 4-point scale; changed to 5-point scale beginning in Fall 2017

<sup>2</sup>UG = undergraduate, G = graduate

<sup>3</sup>Undergraduate and high school students working on independent research projects

\*Transitioned to remote, online teaching at midterm due to Covid-19

## Advising and Recruitment Activities

### Advising

<b>Undergraduate Advising</b>										
	BAE			TSM <sup>1</sup>				Totals		
	So	Jr	Sr	Fr	So	Jr	Sr	BAE Advisees	TSM Advisees	Direct Advisees / Program Enrollment
<b>Spring 2016</b>	62	--	--	5	12	2	2	175	21	<b>83/196</b>
<b>Fall 2016</b>	55	--	--	--	6	10	4	197	20	<b>75/117</b>
<b>Spring 2017</b>	53	--	--	--	5	8	3	170	16	<b>69/186</b>
<b>Fall 2017</b>	53	--	--	--	--	5	7	144	12	<b>65/153</b>
<b>Spring 2018</b>	56	--	--	--	--	2	7	139	9	<b>65/148</b>
<b>Fall 2018</b>	40	--	--	--	--	1	4	107	5	<b>45/112</b>
<b>Spring 2019</b>	37	--	--	--	--	--	3	107	3	<b>40/110</b>
<b>Fall 2019</b>	46	--	3	--	--	--	1	101	1	<b>50/102</b>
<b>Spring 2020</b>	31	2	3					92		<b>36/92</b>
<b>Fall 2020</b>	31	11	2					96		<b>44/96</b>
<b>Spring 2021</b>	28	6	--					82		<b>34/82</b>

<sup>1</sup>No new students were admitted to the TSM program (operated as an Ag Individualized Degree Program) after the Spring 2016 semester.

### Letters of Recommendation Written

2021: 3 (as of March 23)  
 2020: 20  
 2019: 15  
 2018: 3  
 2017: 4  
 2016: 5  
 2015: 13  
 2014: 1

### Tours

1. **COE and CAFE Recruiters, Advisors, Administration and Instructors Tours.** Attended by 11 people, August 15, 2019.
2. **UK College of Engineering Grand Tours.** Tour guide for the BAE Department portion of the UK College of Engineering Grand Tour, a weekly tour for prospective students and their families (approximately 10-30 people each week) during the Fall and Spring semesters (September 2015-May 2017).
3. **COE and CAFE Recruiters, Advisors, Administration and Instructors Tours.** Attended by 11 people, February 13 and 24, 2017.
4. **Upward Bound Program Tour.** Attended by approximately 30 high school students, July 2016.

## Events

1. **College of Engineering First Year Engineering Information Session.** September 12, 2016.
2. **College of Engineering First Year Engineering Information Session.** November 7, 2016.
3. **BAE Open House for Prospective Students.** November 16, 2016.
4. **CAFE Winter Event.** Attended by approximately 70 people (25 prospective students) and spoke directly with 2 families, January 7, 2017.
5. **BAE Grad Student Recruitment Event.** Attended by 8 prospective students, January 19-21, 2017.
6. **Future Student Roundup Event.** Spoke directly with 13 people, October 5, 2017.
7. **College of Engineering First Year Engineering Information Session.** October 10, 2017.
8. **College of Engineering First Year Engineering Information Session.** November 15, 2017.
9. **BAE Grad Student Recruitment Event.** Attended by 6 prospective students, January 25-27, 2018.
10. **COE Regional School Advisor Meeting.** Attended by advisors from regional Kentucky schools and community colleges, March 7, 2018.
11. **Summer Technical Update Training – Information Session about Biosystems Engineering Program.** Hosted by the Department of Community and Leadership Development and Agricultural Education. Attended by 15 Kentucky Agricultural Education teachers, June 12, 2018.
12. **Institute of Future Agricultural Leaders.** Attended by 44 students and spoke directly with 9 students, June 20, 2018.
13. **Future Student Roundup Event.** Spoke directly with 7 people, September 27, 2018.
14. **College of Engineering First Year Engineering Information Session.** October 10, 2018.
15. **College of Engineering First Year Engineering Information Session.** November 29, 2018.
16. **CAFE Winter Event.** Spoke directly with 4 prospective students and their families. January 8, 2019.
17. **BAE Grad Student Recruitment Event.** Attended by 7 prospective students, January 17-19, 2019.
18. **Future Student Roundup Event.** Spoke directly with 8 people, September 12, 2019.
19. **BAE Welcome Picnic and Open House.** September 25, 2019.
20. **Grad SWE Female Faculty-Student Luncheon and Networking Event.** March 4, 2020.
21. **BAE Virtual Reception.** Attended by 7 prospective students, May 13, 2020.
22. **College of Engineering First Year Engineering Information Session.** September 16, 2020.
23. **BAE Virtual Reception.** Attended by 3 prospective students, October 13, 2020.
24. **COE Regional School Advisor Meeting.** Attended by approximately 35 advisors from regional Kentucky schools and community colleges, October 15, 2020.
25. **BAE Virtual Reception.** Attended by 3 prospective students, November 10, 2020.
26. **BAE Virtual Reception.** *Engineering a Sustainable Future: Impacting Our World Through Food, Energy, and Water.* Attended by 14 prospective students, February 10, 2021.



27. **BAE Virtual Reception.** *Engineering a Sustainable Future: Impacting Our World Through Food, Energy, and Water.* April 7, 2021.

## Presentations

1. **Modenbach, A.** *Building Relationships and Community in Biosystems and Agricultural Engineering.* Presented as the ASEE Biological and Agricultural Engineering Division Keynote Address. ASEE Annual Meeting, Virtual Conference. June 2020.
2. Escobar, I., Grady, M., Letellier, L., **Modenbach, A.** *Engineering Girl Day Faculty Q&A Panel.* Presented during the University of Kentucky College of Engineering E-Week activities to prospective female students and their families, Lexington, KY. September 2019. Approx. 75 people (47 prospective students).
3. Anderson, K., Hart, K., **Modenbach, A.**, Wilson, S. *Engineering Girl Day Faculty Q&A Panel.* Presented during the University of Kentucky College of Engineering E-Week activities to prospective female students and their families, Lexington, KY. February 2018. Approx. 110 people (61 prospective students).
4. **Modenbach, A.** *Using digital portfolios to document student growth.* Presented at the UK Faculty Fellows Showcase, Lexington, KY. November 2017.
5. Anderson, K., Cui, L., Letellier, L., **Modenbach, A.**, Pennell, K.. *Engineering Girl Day Faculty Q&A Panel.* Presented to prospective female students and their families, Lexington, KY. October 2017. Approx. 80 people (33 prospective students).
6. **Modenbach, A., Nokes, S.** *Transitioning students into BAE from a common first-year curriculum – A work in progress.* Presented at the ASEE Annual Meeting, Columbus, OH. June 2017.
7. Anderson, K., Letellier, L., **Modenbach, A.**, Pennell, K., Trinkle, C. *Engineering Girl Day Faculty Q&A Panel.* Presented during the University of Kentucky College of Engineering E-Week activities to prospective female students and their families, Lexington, KY. February 2017. Approx. 80 people (32 prospective students).
8. **Modenbach, A., Nokes, S.** *Teaching students how to learn: Strategies you can incorporate into any course to improve student metacognition, learning and motivation.* Presented at the BAE Departmental Seminar, Lexington, KY. October 2016. Approx. 35 people.
9. **Modenbach, A.** *Biosystems Engineering at the University of Kentucky.* Presented during the 4H Teen Conference held at the University of Kentucky, Lexington, KY. June 2016. Approx. 15 people.
10. Agouridis, C., Goldsmith, J., Knutson, B., Lumpp, J., **Modenbach, A.** *Engineering Girl Day Faculty Q&A Panel.* Presented during the University of Kentucky College of Engineering E-Week activities to prospective female students and their families, Lexington, KY. February 2016. Approx. 60 people.
11. **Modenbach, A., Nokes, S., Day, G., Adams, W.** *An alternative approach to introducing the engineering design process to freshmen engineering students.* Presented at the ASABE Annual International Meeting, Montreal, Quebec, Canada. July 2014.
12. **Modenbach, A., Nokes, S.** *Effects of solids loadings in sodium hydroxide pretreatment and enzymatic hydrolysis of corn stover.* Presented at the IBE Annual Meeting, Lexington, KY. March 2014.

13. **Modenbach, A.**, Nokes, S. *Example of freshmen biological engineering design projects*. Presented at the IBE Annual Meeting, Lexington, KY. March 2014.
14. **Modenbach, A.**, *Online Professionalism*. Presented at a UK BAE Student Branch Meeting, Lexington, KY. September 2013.
15. **Modenbach, A.**, Nokes, S. *Towards improving hydrolysis of sodium hydroxide pretreated corn stover at high-solids loadings*. Presented at the ASABE Annual International Meeting, Kansas City, MO. July 2013.
16. Gray, K., Nokes, S., Montross, M., **Modenbach, A.**, Jackson, J. *Investigation of alkaline hydrogen peroxide pretreatment for its use in an on-farm butanol bioprocessing facility*. Poster presented at the ASABE Annual International Meeting, Kansas City, MO. July 2013.
17. **Modenbach, A.**, Nokes, S., Montross, M., Knutson, B. 2012. *Characterization of soluble and insoluble inhibitor effects on enzymatic hydrolysis at high solids using pretreated corn stover*. Presented at the ASABE Annual International Meeting, Dallas, TX, July 2012.
18. **Modenbach, A.**, Nokes, S., Knutson, B., Rankin, S. 2011. *Recovery of a Purified Stream of C5 Sugars from Lignocellulosic Hydrolyzate Using Microphase-Directed Imprinted Materials*. Presented at the ASABE Annual International Meeting, Louisville, KY, July 2011.
19. **Modenbach, A.**, Nokes, S., Knutson, B., Rankin, S. 2011. *Recovery of a Purified Stream of C5 Sugars from Lignocellulosic Hydrolyzate Using Microphase-Directed Imprinted Materials*. Poster presented at the S-1041 Annual Symposium, Stillwater, OK, 2011.
20. **Abadie, A.**, Nokes, S., Osei-Prempeh, G., Knutson, B., Rankin, S. 2010. *Towards Recovery of Purified Streams of Feedstocks from Biomass for Novel Cellulosic Ethanol Co-Products*. Poster presented at the IBE Annual Meeting Poster Competition, Cambridge, MA, March 2010.
21. **Abadie, A.**, Nokes, S.E., Chen, W. 2008. *Quantifying Cellulase in High-Solid Systems*. Presented at the ASABE Annual International Meeting, Providence, RI, June 2008.
22. Crofcheck, C., J. Ferrara, **A. Abadie**, and S. Nokes. 2008. *Biofuels Education: Opportunities and Possibilities*. Presented at the International Fuel Ethanol Workshop in Nashville, TN, June 18, 2008 (invited presentation).
23. **Abadie, A.**, Bridges, T.K., Lima, M. 2006. *Minimizing the Environmental Impact of Construction Materials in Playground Design*. Poster presented at the American Society of Agricultural and Biological Engineers Annual Meeting Undergraduate Poster Competition, Portland, OR, June 2006.
24. **Abadie, A.**, Bridges, T.K., Qureshi, T., Lima, M. 2006. *Minimizing the Environmental Impact of Construction Materials in Playground Design*. Poster presented at the Environmental Protection Agency's P3: People, Prosperity, and the Planet Student Design Competition for Sustainability, Washington, D.C., May 2006.
25. **Abadie, A.**, Lima, M. 2005. *The Quantification and Extraction of an Anti-tumor Compound from Rice Bran*. Poster presented at the ASAE Annual International Meeting Undergraduate Poster Competition, Tampa, FL, July 2005.

## Professional Development

1. **Question Persuade Refer (QPR) Training**. Presented by Dr. Amanda Bloom. January 8, 2021.

2. **Integrated Success Coach Training.** Presented by Julie Bradley, Bailey Ubellacker, Alli Lake, Melinda Humbert, Benn Dunn, Trevor Tierney, and Dominick Williams, December 11, 2020.
3. **Instructor Training for LockDown Browser and Respondus Monitor: Prevent Cheating During Online Exams.** Respondus Training Team, August 25, 2020.
4. **Engineering Online Teaching Workshop.** Presentation by Christine Goble, David Silverstein, and Sarah Wilson, August 4, 2020.
5. **Demystifying Video Creation.** Presentation by David Cole, Week of Teaching Symposium, July 31, 2020.
6. **Digital Tools.** Presented by Alicia Benben, July 8, 2020.
7. **Engage Students and Create Class Community.** Presentation by Alicia Benben and Shauna Morgan, Week of Teaching Symposium, April 29, 2020.
8. **Design the Syllabus and Choose Modes of Delivery.** Presentation by Hannah Ruehl and Tia Williams, Week of Teaching Symposium, April 27, 2020.
9. **Kentucky Spirits One-Day Conference.** Hosted by the James B. Beam Institute, February 27, 2020.
10. **Canvas as an Advising Tool.** Presentation by Jordan Hoehler and Ryan Story, and facilitated by the UK Advising Network, September 26, 2019.
11. **Lunch and Learn Addiction 101.** Presentation by Holly Dye, September 19, 2019.
12. **Academic Coaching Training.** Presentation by Julie Bradley, May 21, 2019.
13. **University of Kentucky Advising Network Professional Development Day.** Presentations by Kim Scott, Colette Tebeau, Amy Karr, John Blaine, Lexie Foellger and hosted by the UK Advising Network, May 10, 2019.
14. **Mental Health First Aid Training.** Presentation by Ashley Hinton, May 8-9, 2019.
15. **Engineering Inclusive Classrooms: Guiding Principles and Strategies (Part 2 of 2).** Presentation by Tershia Pinder-Grover, and facilitated by ASEE, April 10, 2019.
16. **Engineering Inclusive Classrooms: Cultivating a Positive Climate (Part 1 of 2).** Presentation by Tershia Pinder-Grover, and facilitated by ASEE, March 20, 2019.
17. **Teaching Metacognition to Help Students Own and Improve Their Learning: Part 2 of 2.** Presentation by Patrick Cunningham and Holly Matusovich, and facilitated by ASEE, February 20, 2019.
18. **Green Dot Overview.** Presentation by Deloris Foxworth and Maria Rivera, and facilitated by the UK Advising Network, February 19, 2019.
19. **Student Anxiety and What Advisors Should Know.** Presentation by the UK Counseling Center, and facilitated by the UK Advising Network, February 13, 2019.
20. **Teaching Metacognition to Help Students Own and Improve Their Learning: Part 1 of 2.** Presentation by Patrick Cunningham and Holly Matusovich, and facilitated by ASEE, February 6, 2019.

21. **Learn How to Ask Better Questions with the Question Formulation Technique.** Presentation by Luz Santana and Andrew P. Minigan, Right Question Institute, and facilitated by ASEE, December 5, 2018.
22. **Degree Audit Training.** Presentation by Mike Shanks, November 29, 2018.
23. **COE Advisors Professional Development Workshop.** Presentations by Marietta Watts, Rayne Parker, Julie Bradley, and Buddy Hall and facilitated by Jennifer Doerge, June 1, 2018.
24. **University of Kentucky Advising Network Professional Development Day.** Presentations by Sarah Ballard, Meg Marquis, and Dr. James Thomas and hosted by the UK Advising Network, May 18, 2018.
25. **Meeting Productively.** Presented by Debra Graham and sponsored by College of Engineering, March 1, 2018.
26. **Holding Difficult Conversations.** Presented by Debra Graham and sponsored by College of Engineering, January 24, 2018.
27. **Integrity and Ethics in Instruction: A Workshop and Conversation.** Presented by T. Lynn Williamson, Dr. Joseph McGillis, Dr. Morris Grubbs, and Dr. G.T. Lineberry and sponsored by College of Agriculture, Food and Environment, January 9, 2018.
28. **University of Kentucky Advising Network Professional Development Day.** An Introduction to Design Thinking. Presented by John Nash and hosted by the UK Advising Network, May 19, 2017.
29. **Unconscious Bias Training.** May 16, 2017.
30. **Digital Measures Training Workshop.** Presented by Megan Lucy, May 11, 2017.
31. **Improving Academic Advising to Support Student Success: A Campus-Wide Approach to Open Dialogue and Changing Culture.** Presented by Charlie Nutt, Lynn Brabender, and Jennifer Joslin and facilitated by NACADA, May 11, 2017.
32. **COE Advisors Professional Development Workshop.** Presented by Rob Theakston, Susan Herrick, Jennifer Doerge, and Dr. Beth Higgins and facilitated by Jennifer Doerge, May 3, 2017.
33. **Internal Review Board.** College of Agriculture, Food and Environment Lunch-and-Learn Series presented by Helene Lake-Bullock and Noe Tirado-Muniz, April, 13, 2017.
34. **Effective Teaching Strategies.** Presented by Dr. Kim Woodrum, Dr. Matt Beck, Dr. Czarena Crofcheck, and Dr. Bill Smith and facilitated by the College of Engineering, March 21, 2017.
35. **Cheating – Curbing, Catching, and Consequences.** Presented by Dr. Bill Burke and facilitated by CELT, February 15, 2017.
36. **Active Shooter Forum.** Presented by Officer Boatman (UKPD) and sponsored by College of Agriculture, Food and Environment, February 15, 2017.
37. **Student Financial Wellness.** College of Agriculture, Food and Environment Lunch-and-Learn Series presented by Holly Sandlin and Tiffany Jackson, February 7, 2017.
38. **Working with Student in Distress.** Presented by the UK Consueling Center and sponsored by the College of Engineering, January 3, 2017.
39. **CAFE Social Media Workshop – Analytics.** Presented by Jenny Evans and Renee Fox, November 17, 2016.

40. **BAE Brown Bag Mentoring Lunch.** Sponsored by BAE Department for new faculty, November 11, 2016; February 14, 2017; March 14, 2017; April 11, 2017.
41. **Mindset and Motivation.** Presented by CELT, September 28, 2016.
42. **Metacognition: The Key to Teaching Students Transformative Learning Strategies.** Presented by Dr. Sandra McGuire and facilitated by CELT, May 4, 2016.
43. **Accommodating Accommodations: How to Work with Students with Disabilities or Emotional Concerns.** College of Agriculture, Food and Environment Lunch-and-Learn Series presented by Dr. Leisa Pickering and Dr. Matt Ashton, April 13, 2016.
44. **Panel Discussion with Underrepresented Students in STEM.** Facilitated by CELT and Dr. Renee Fatemi, April 7, 2016.
45. **SafeZone Workshop.** University of Kentucky Office of LGBTQ\* Resources presented by Lance Poston, March 2, 2016.
46. **Teaching the Millennials with the Net Generation on the Way (Advice from a Boomer).** Graduate Student Workshop presented by Bill Burke, November 10, 2011.
47. **Preparing for the Professoriate: What You Can Do Now to Optimize Your Success.** Graduate Student Workshop presented by Morris Grubbs and Linda Worley, April 13, 2011.
48. **Effective Course Design: Teaching and Learning Activities.** Graduate Student Workshop, April 2010.
49. **Effective Course Design: Generating Learning Goals.** Graduate Student Workshop, April 2010.
50. **Designing for Significant Learning.** Presented by Kathryn Cunningham, May 2007.

## Extramural Projects

1. UK Biosystems and Agricultural Engineering Academic Showcase (October 2018-April 2019)
  - Assisted with the development and planning of an event to showcase the academic and professional success of current students and alumni
2. ASABE Young Professionals Community Professional Development Workshop, (July 2014-April 2016)
  - Secured funding for the development of the workshop, **\$50,000**
  - Developed workshop programs, prepared advertisement materials, and secured guest speakers
3. UK Biosystems and Agricultural Engineering Graduate Student Recruitment Event, (August 2010-Present)
  - Developed a graduate student recruitment event held annually for the Department of Biosystems and Agricultural Engineering at the University of Kentucky
  - Prepared advertisement materials and application forms, developed event programs, and interacted with faculty and potential graduate students
4. Distance-Learning Course Development, (June 2007-December 2007)
  - Worked with professors at multiple universities to develop and implement a Fundamentals of Biorenewable Resources course and a Biofuels course to promote distance-learning

5. LSU Community Playground Project, (June 2003-July 2006)
  - Worked with community partners in the city of Baton Rouge, LA on playground designs
  - Constructed a playground at the Louisiana School for the Deaf
  - Investigated public school playground conditions in Baton Rouge, LA

## Professional Society and Organization Memberships

- NACADA (January 2017-Present)
- ASABE KY Section (May 2015-Present)
- American Society of Engineering Education (January 2014-Present)
- Gamma Sigma Delta Honor Society of Agriculture (March 2012-Present)
- ASABE Alpha Epsilon Honor Society Kentucky Omega Chapter (April 2007-Present)
- Institute of Biological Engineers (IBE; January 2007-December 2015)
- American Society of Agricultural and Biological Engineers (ASABE; January 2005-Present)
- Louisiana State University Biological Engineering Student Organization (BESO; August 2003-August 2005)

## Professional Meetings Attended

### **ASABE**

2020 – Virtual Conference  
2019 – Boston, MA  
2017 – Spokane, WA  
2016 – Orlando, FL  
2015 – New Orleans, LA  
2014 – Montreal, Quebec, Canada  
2013 – Kansas City, MO  
2012 – Dallas, TX  
2011 – Louisville, KY  
2010 – Pittsburgh, PA  
2009 – Reno, NV  
2008 – Providence, RI  
2007 – Minneapolis, MN  
2006 – Portland, OR  
2005 – Tampa, FL

### **IBE**

2014 – Lexington, KY  
2010 – Cambridge, MA  
2008 – Raleigh, NC  
2007 – St. Louis, MO

## **ASEE**

2020 – Virtual Conference

2019 – Tampa, FL

2017 – Columbus, OH

2014 – Indianapolis, IN

## Service

### **Committees**

- University of Kentucky University Appeals Board (September 2020-Present)
- University of Kentucky Department of Electrical and Computer Engineering Senior Design External Review Committee (April 2020-Present)
- University of Kentucky BAE Search Committee Assistant Professor in Food and Bioprocess Engineering and Fermentation (February 2020-Present)
- University of Kentucky BAE Search Committee Administrative Assistant (January 2020)
- University of Florida Department of Agricultural and Biological Engineering Advisory Board (October 2018-December 2021)
- University of Kentucky Senate Undergraduate Curriculum Council – Advising Network Representative (July 2018-Present)
- University of Kentucky BAE Soil and Watershed Science Graduate Certificate Committee (July 2017-Present)
- ASABE Member Value Committee (*Ad Hoc*; July 2017-August 2018)
- ASABE Initiative Fund Review Committee (July 2017-Present)
- ASABE M-120 Gale A. Holloway Professional Development Award Committee (September 2016-Present)
- University of Kentucky Technical Systems Management Curriculum Committee (September 2015-December 2019)
- University of Kentucky BAE Undergraduate Curriculum Committee (September 2014-Present)
- University of Kentucky BAE Student Recruitment and Outreach Committee (September 2014-Present)
- University of Kentucky BAE Alumni Committee (September 2014-Present)
- ASABE YPC Executive Committee – Membership Development Council Representative (July 2013-July 2015)
- ASABE Membership Development Council – YPC Representative (July 2013-July 2015)
- ASABE BE-28 Bioconversion and Bioprocesses Technical Committee (July 2013-July 2014)
- ASABE E-05 Marketing and External Communication Committee (July 2012-Present)
- University of Kentucky BAE Periodic Program Review Committee (*Ad Hoc*; October 2011-April 2012)

- University of Kentucky BAE Research and Graduate Studies Committee (September 2011-September 2012, September 2014-Present)
- ASABE YPC Executive Committee Member-At-Large – Coordinated invited speakers and prepared and developed events and activities for the ASABE Annual International Meeting (July 2010-July 2013)
- ASABE P-120 Student Organizations Committee (June 2008-July 2017)
- University of Kentucky BAE Departmental Seminar Committee (August 2007-August 2011, August 2013-Present)
- LSU Tiger Marching Band Clarinet Section Member – Attended and performed at university events and home and away games, as well as the Cotton Bowl, the National Championship Game at the Sugar Bowl, the Capitol One Bowl, and the Chick-Fil-A Peach Bowl (August 2002-May 2006)

### Leadership

- ASABE E-05 Gathering Information Committee Chair (*Ad-hoc*; July 2020-Present)
- ASABE Professional Engineer Institute Secretary/Treasurer (July 2020-Present)
- ASEE BAE Division Past Chair (June 2020-Present)
- ASEE BAE Division Awards Chair (June 2020-Present)
- UK BAE Undergraduate Curriculum Committee Chair (September 2019-Present)
- ASABE M-120 Gale A. Holloway Professional Development Award Committee Chair (September 2019-Present)
- ASEE BAE Division Chair (June 2019-June 2020)
- ASEE BAE Division Program Chair (June 2018-June 2019)
- ASABE Membership Development Council Past-Chair (July 2017-August 2018)
- ASEE BAE Division Secretary (June 2017-June 2018)
- ASABE Kentucky Section Secretary (July 2017-July 2018)
- UK BAE Departmental Seminar Committee Chair (September 2016-Present)
- ASABE National Alpha Epsilon Honor Society Secretary/Treasurer (February 2016-July 2019)
- ASABE Membership Development Council Chair (July 2015-July 2017)
- ASABE Kentucky Section Vice Chair of Publicity (May 2015-June 2017)
- ASABE Membership Development Council Vice Chair (July 2014-July 2015)
- ASABE E-05/1 National Engineers' Week Subcommittee Chair (July 2012-July 2019)
- ASABE National Alpha Epsilon Honor Society Secretary/Treasurer (June 2009-July 2014)
- LSU Tiger Marching Band Clarinet Section Co-Section Leader (July 2005-May 2006)



**Reviewer**, *AICHE Journal*, *ASCE Conference Proceedings*, *BioEnergy Research*, *Biomass Conversion and Biorefinery*, *Biotechnology for Biofuels*, *Brazilian Journal of Chemical Engineering*, *Energy & Fuels*, *Transactions of the ASABE*

**Mentor**, ASABE Professional Engineer Mentor Program – mentored 3 Engineers in Training during preparation for professional engineering licensure exam (January 2018-Present)

**Competition Judge**, National Future City Competition Judge, Washington, D.C. (February 2015); Regional Future City Competition Judge, Lexington, KY (January 2015); Dixie Elementary School Science Fair Judge, Lexington, KY (January 2014)

## Honors and Awards

- ASCE Biological and Agricultural Engineering Division Early Achievement in Engineering Education Award, 2020
- University of Kentucky Outstanding Biosystems and Agricultural Engineering Teacher, 2018, 2019, 2020, 2021
- Gale A. Holloway Professional Development Award, 2016
- Order of the Engineer, Class of 2011
- New Faces of ASABE (2011, Awarded to members of the American Society of Agricultural and Biological Engineers who are under the age of 30 and have shown outstanding, early-career achievements in agricultural and biological engineering)
- 2010 Chancellor's Sesquicentennial Service Award (2010, Awarded to the LSU Community Playground Project for their service to the community)
- National Science Foundation Fellowship (2008-2011, tuition + \$30,000 annual stipend)
- Donald W. Clayton Engineering Excellence Award for Outstanding Undergraduate Students (2006, \$5,000)
- Carl H. Thomas Memorial Scholarship (2005)
- Blue Angels' Alumni Association Scholarship (2004, 2005)
- LSU Centennial Scholarship (2002-2006, \$1000/year)
- Pegues Scholarship (2002-2006, \$800/year)
- TOPS Scholarship – Honors Award (2002-2006, tuition + \$800 annual stipend)
- LSU Dean's List (4 semesters) and Chancellor's List (3 semesters)

## Media Coverage

1. UKNow University of Kentucky News. *UK Students Working to Develop Safety Standard for Equestrian Helmets*. Published March 18, 2021.
2. Equus. *University of Kentucky Students Working to Develop Safety Standard for Equestrian Helmets*. Published March 8, 2021.
3. CAFÉ Equine Program. *Helmet Safety and Connection of Horseshoes to Osteoarthritis Issues are Two Focus Areas for UK Engineering Seniors*. Published January 21, 2021.