

College of Engineering, Computing and Applied Science

Mark Alan Blenner

PERSONAL DATA

Dean's Assistant Professor
Chemical & Biomolecular Engineering
Clemson University
Clemson, SC 29634
864-656-0290



EDUCATION

Ph.D., Columbia University, 2009, Chemical Engineering
M.S., Columbia University, 2006, Chemical Engineering
B.S., Manhattan College, 2004, Chemical Engineering

PROFESSIONAL EXPERIENCE

Clemson University

2016-Present, CECAS Dean's Professorship
2016-Present, Faculty Fellow, CU School of Health Research
2014-Present, Coordinator, Biomanufacturing & Bioproducts Consortium
2012-Present, Assistant Professor, Chemical & Biomolecular Engineering

Harvard Medical School

2011-2012, Research Fellow, Biological Chemistry & Molecular Pharmacology
2009-2011, Research Fellow, Pathology

Children's Hospital Boston

2009-2012, Research Fellow, Immune Disease Institute

Coca Cola, North America

2002, Intern, Water-Energy-Solid Waste Division

MEMBERSHIPS

Member, American Institute of Chemical Engineers, AIChE (2000-current)

Member, Society for Biological Engineers, SBE (2005-current)

Member, American Chemical Society, ACS (2005-current)

Member, Protein Society, (2005-current)

Member, Society of Industrial Microbiology & Biotechnology (2015-current)

Member, American Society of Microbiology (2016-current)

PROFESSIONAL ACTIVITIES

Professional Society Leadership

American Chemical Society, Area Coordinator, Biochemical Technology Division (2016)

American Chemical Society, Executive Committee – Webmaster, Biochemical Technology Division (2014-Present).

Editorship

Microbial Cell Factories Editorial Board (2017-Present)

Invited Co-Editor of “Methods in Molecular Biology: *Yarrowia lipolytica*” (2017-Present).

AIMS Bioengineering Editorial Board (2016-Present)

Guest Editor for Bioengineering MDPI: Special Issue on Metabolic Engineering (2015)

Professional Society Meeting Organization

“Biochemical Technology Division Poster Session”, American Chemical Society Annual Meeting, Session Chair, (2018)

“Protein Structure, Function, and Stability I & II”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2017)

“Journey to Mars”, American Chemical Society – Division of Polymers Fall Annual Meeting, Session Chair (2017)

“Metabolic Engineering of Fuels and Chemicals”, Society of Industrial Microbiology & Biotechnology Annual Meeting, Session Chair (2017)

“Synthesis in Space”, American Chemical Society – Division of Biochemical Technology Annual Meeting, Session Chair (2017)

“Biobased Fuels and Chemicals II: Recalcitrant Feedstocks”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2016)

“Biobased Fuels and Chemicals II: Beyond Glucose”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2015)

“Upstream Processes: Biocatalysis”, American Chemical Society – Division of Biochemical Technology Annual Meeting, Session Chair (2015)

“Protein Engineering I – Combinatorial Techniques”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2014)

“Advances in Protein Post-Translational Modification”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2014)

- “Biobased Fuels and Chemicals I: Pathway Engineering”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2014)
- “Upstream Processes: General Topics”, American Chemical Society – Division of Biochemical Technology Annual Meeting, Session Chair (2014)
- “Protein Engineering IV – Therapeutics”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2013)
- “Protein Structure, Function, and Stability”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2013)
- “Protein Expression & Post-Translational Modification”, American Institute of Chemical Engineers Annual Meeting, Session Chair, (2012)

Journal Peer Review

ACS Catalysis
 ACS Synthetic Biology
 Applied and Environmental Microbiology
 Biochemical Engineering Journal
 Bioinformatics Journal
 Biotechnology for Biofuels
 Biotechnology Journal
 Biotechnology Progress
 Bioprocess & Biosystems Engineering
 Cell Systems
 Current Opinion in Biotechnology
 Energy & Fuels
 Engineering for Life Sciences
 Enzymatic and Microbial Technology
 Frontiers in Microbiology
 Journal of Immunological Methods
 Journal of Industrial Microbiology & Biotechnology
 Journal of the Royal Society Interface
 Metabolic Engineering
 Microbial Cell Factories
 Nucleic Acids Research
 Protein Science Journal
 Scientific Reports

PUBLICATIONS (undergraduate, *corresponding author, ‡equal contribution).

Books and Monographs

1. Blenner, M. "Enzymatic Deconstruction of Lignin for Biofuels" in *Advances in Enzymatic Conversion of Biomass to Biofuels*, 1st Edition (2015), Future Medicine Ltd, Montreal Canada.

Refereed Journal Publications

2. Shabbir Hussain, M., Wheeldon, I., Blenner, M.* “A Strong Hybrid Fatty Acid Inducible Transcriptional Sensor Built from *Yarrowia lipolytica* Upstream Activating and Regulatory Sequences”, *Biotechnology Journal* (In Press). DOI: 10.1002/biot.201700248
3. Bulutoglu, B., Dooley, K., Szilvay, G., Blenner M., and Banta, S.* “Catch & Release: Fishing for target proteins with an evolved β -roll peptide exhibiting allosteric regulation”, *ACS Synthetic Biology* (In Press). DOI: 10.1021/acssynbio.7b00089
4. Yaguchi, A.‡, Rives, D.‡, Blenner, M.* “The New Kids on the Block: Emerging Oleaginous Yeast of Biotechnological Importance”, *AIMS Microbiology* 3(2):186-206 (2017).
5. Schwartz, C., Shabbir-Hussain, M., Froque, K., Blenner, M., Wheeldon, I.* “Standardized markerless gene integration for pathway engineering in *Yarrowia lipolytica*”, *ACS Synthetic Biology* 6(3):402-409 (2017).
6. Shabbir Hussain, M.‡, Rodriguez, G.‡, Gao, D., Spagnuolo M., Gambill, L., Blenner, M.* “Recent Advances in Bioengineering of the Oleaginous Yeast *Yarrowia lipolytica*”, *AIMS Bioengineering* 3(4):493-514 (2016).
7. Rodriguez, G.‡, Shabbir Hussain, M.‡, Gambill L., Gao, D., Yaguchi, A., Blenner, M.* “Engineering Xylose Utilization in *Yarrowia lipolytica* by Understanding its Cryptic Xylose Pathway”, *Biotechnology for Biofuels* 9:149 (2016).
8. Schwartz, C., Shabbir-Hussain, M., Blenner, M., Wheeldon, I.* “Synthetic RNA Polymerase III Promoters Facilitate High Efficiency CRISPR-Cas9 Mediated Genome Editing in *Yarrowia lipolytica*”, *ACS Synthetic Biology* 5(4):356-359. (2016); **Paper is most read during past 12 months.**
9. Shabbir Hussain, M., Gambill L., Smith, S., Blenner, M.* “Engineering Promoter Architecture in Oleaginous Yeast *Yarrowia lipolytica*”, *ACS Synthetic Biology*, **5(3)**:213-223. (2016); **Research is featured on the cover of the March 2016 issue.**
10. Wilson, A., Blenner, M., Guiseppi-Elie, A.* “Polyplex Formation Influences Release Mechanism of Mono- and Di-Valent Ions from Phosphorylcholine Group Bearing Hydrogels”, *Polymers*, **6**, 2451-2472 (2014)
11. Nedumpully-Govindan, P., Lin, L., Alexov, E., Blenner, M., Ding, F*. “Structural and Energetic Determinants of Tyrosylprotein Sulfotransferase Specificity”. *Bioinformatics*, **15(30)**:2302-2309 (2014).
12. Blenner, M., Dong, X., Springer, T*. “The structural basis of regulation of von Willebrand Factor binding to glycoprotein Ib”, *J. Biological Chemistry*, **289**:5565-5579 (2014)
13. Shur, O., Dooley, K., Blenner, M., Baltimore, M., Banta, S*. “A designed, phase changing RTX-based peptide for efficient bioseparations”, *Biotechniques*, **54(4)**:197-206 (2013).

Prior to Clemson

14. Banta, S.*, Wheeldon, I., Blenner, M. “Protein engineering in the development of functional hydrogels” *Annual Reviews in Biomedical Engineering*, **12**, 167-186 (2010)

15. Blenner, M., Shur, O., Szilvay, G., Cropeck, D., Banta, S*. (2010), "Calcium induced folding of a Repeat in Toxin (RTX)- Domain Via C-Terminal Entropic Stabilization" *Journal of Molecular Biology*. **400**, 244-256 (2010).
16. Szilvay, G., Blenner, M., Cropeck, D., Banta, S*. "A FRET-based Method for Probing the Conformational Behavior of an Intrinsically Disordered Repeat Domain from *Bordetella pertussis* Adenylate Cyclase" *Biochemistry* **48**, 11273-11282 (2009).
17. Blenner, M., Banta, S*. "Characterization of the 4D5Flu single chain antibody with a stimulus-responsive elastin-like peptide linker: A potential reporter of peptide linker conformation" *Protein Science* **17**, 527-536 (2008).
18. Chockalingam, K., Blenner, M., Banta, S*. "Design and application of stimulus responsive peptide systems" *Protein Engineering Design and Selection* **20**, 155-61 (2007).

Patents & Intellectual Property

1. Banta, S*, Blenner, M., Wheeldon, I., Dooley, K. "Leucine Beta Roll Domains And Uses Thereof" US 9,127,267 B2 (September 2015)

Publications Submitted or In Preparation

1. Gao, D., Rodriguez, G., Shabbir Hussain, M., Blenner, M.* "Dual CRISPR-Cas9 Cleavage in *Yarrowia lipolytica* Leads to Efficient Gene Excision" (In Review)
2. Yaguchi, A., Robinson A., Mihealsick E., Blenner, M.* "Metabolism of Aromatic Compounds by *Trichosporon oleaginosus* While Remaining Oleaginous" (In Review)

HONORS AND AWARDS

CECAS Dean's Professorship Award (2016-2019)
 NASA Early Career Faculty Award (2015)
 Air Force Office of Scientific Research, Young Investigator Award (2015)
 Ruth L. Kirschstein National Research Service Award, NIH (2011-2012)
 Charles Lapple Fellowship, Columbia University (2007-2009)
 Draddy Medal for Excellence in Engineering, Manhattan College (2004)
 Omega Chi Epsilon Award, Manhattan College (2004)
 Sigma Xi (2004)
 Epsilon Sigma Pi (2003)
 Tau Beta Pi (2002)

PRESS COVERAGE

Coverage of 2017 ACS Fall Meeting Presentation in Special Symposium on “The Journey to Mars”

Press release by ACS on Materials and Nutraceuticals from Astronaut Waste.

Coverage of 2017 DTRA Grant on Radiation Biosensors

<http://newsstand.clemson.edu/mediarelations/new-biosensor-could-help-search-for-nuclear-activity/>

Coverage of 2016 DTRA Grant on Enzyme Immobilization

http://www.eurekalert.org/pub_releases/2016-06/cu-cur062816.php

<http://greenvillejournal.com/2016/06/28/clemson-university-researchers-developing-enzyme-based-wmd-detectors/>

Coverage of CRISPR-Cas9 Paper

Press release by UC Riverside.

<http://news.science360.gov/obj/story/> Top story for Jan 28, 2016.

Coverage of 2015 NASA Early Career Faculty Award for in situ resource utilization enabled by synthetic biology.

Houston Chronicle (3rd largest by Sunday circulation; 10th largest by daily circulation)

<http://www.chron.com/news/nation-world/space/article/NASA-funds-research-to-recycled-human-waste-for-6455591.php>

Popular Mechanics

<http://www.popularmechanics.com/space/a17007/nasa-waste-yeast/>

SciShow Space Online Video (Over 850,000 subscribers; Over 112,000 views)

<https://www.youtube.com/watch?v=rmxIQcm6fqs>

ClemsonTV Feature

http://newsstand.clemson.edu/tv/clemson_university_human_waste_nasa/

Plastics Today

<http://www.plasticstoday.com/articles/nasa-wants-to-recycle-astronaut-poop-into-plastics-and-vitamins-150827>

Quartz.com

<http://qz.com/484023/nasa-wants-to-turn-human-waste-into-plastic-and-vitamins/>

The Escapist Magazine

<http://www.escapistmagazine.com/news/view/142100-Synthetic-Biology-Could-Let-Us-Recycle-Human-Waste-For-Space-Travel>

Other Coverage

<https://www.nasa.gov/press-release/nasa-awards-grants-for-technologies-that-could-transform-space-exploration>

<http://www.prnewswire.com/news-releases/nasa-awards-grants-for-technologies-that-could-transform-space-exploration-300128771.html>

Coverage of 2015 Air Force Young Investigator Award for materials synthesis and degradation using extremophile enzymes. (Covered by local television stations, and picked up on ASEE First Bell Newsletter)

<http://www.wpafb.af.mil/news/story.asp?id=123436763>

<http://newsstand.clemson.edu/engineered-enzymes-could-lead-to-self-repairing-clothes/>

<http://www.clemson.edu/ces/departments/chbe/documents/news/blenner-wins-yia-afosr-award.pdf>

<http://rheyer.faculty.ucdavis.edu/2015/05/14/asee-first-bell-breaking-news-in-the-engineering-and-technology-field-179/>

<http://wvtm.membercenter.worldnow.com/story/29045383/clemson-researcher-yeast-e-coli-could-detect-chemical-weapons>

<http://my40.tv/news/features/top-stories/stories/feds-fund-selfrepairing-clothes-project-21031.shtml#.Vc8cy4tL1M8>

Coverage of Omega-3 from Animal Fats Research.

Render Magazine, October 2016. <http://www.rendermagazine.com/articles/2016-issues/october-2016/fprf-research/>

Render Magazine, June 2015. <http://www.rendermagazine.com/articles/2015-issues/june-2015/research-shows-unique-uses/>

Render Magazine, December 2014. <http://www.rendermagazine.com/articles/2014-issues/december-2014/converting-animal-fats/>

SPONSORED RESEARCH

Total extramural funding of approximately \$5.1 million (\$3.66 million dollars to MAB; \$3.55 million in force), derived from NSF, AFOSR, NASA, DTRA, and NIH.

ACTIVE FUNDING

“Collaborative Research: Controlling Cellular Physiology and Enzyme Localization for Enhanced Oleochemical Biosynthesis in Yeast”, NSF CBET Cellular & Biochemical Engineering, Principal Investigator, \$347,277 (\$347,277), (2017-2020). Award CBET:TBD

“Understanding the Influence of Kinetics and Structure in CRISPR-Cas9 Cutting of Non-Conventional Yeast” SC EPSCoR/IDeA, Principal Investigator \$10,000 (\$10,000), (2017).

“Discriminatory Transcriptional Response of Environmental Microorganisms to Low-Dose Ionizing Radiation” Defense Threat Reduction Agency (DTRA), Co-Principal Investigator \$1,480,460 (\$709,959), (2017-2022).

“Omega-3 and Fatty Acid Production from Sweet Sorghum” USDA/DOE Southeastern Regional Sun Grant, Principal Investigator, \$150,000 (\$150,000), (2016-2018). 2014-38502-22588

“Optimization and Initial Bioprocess Scale Up of Omega-3 Production from Rendered Fat”, Animal Coproducts Research & Education Center, Principal Investigator, \$38,500 (\$38,500), (2016-2017).

“Fluorescence Activated Cell Sorter”, Defense University Research Instrumentation Program (DURIP), Principal Investigator, \$175,100 (\$175,100), (2016-2017).

“Predictive Structure-Function Relationships for Enzymes Immobilized on Complex Surfaces”, Defense Threat Reduction Agency (DTRA), Principal Investigator, \$823,899 (\$487,983), (2016-2021). HDTRA1-16-1-0023.

“Synthetic Biology for Recycling Human Waste into Nutraceuticals, and Materials: Closing the Loop for Long-Term Space Travel”, NASA Early Career Faculty Award, Principal Investigator, \$599,785 (\$599,785), (2015-2018). NNX15AU46G

“Biocatalytic Conversion of Rendered Animal Fats to Value Added Products Including Omega-3 Fatty Acids”, Animal Coproducts Research & Education Center, Principal Investigator, \$33,000 (\$33,000), (2015-2016).

“Engineering Robust Enzyme Activity Through Fundamental Studies of Extremophile Enzymes”, AFOSR YIP, Principal Investigator, \$359,966 (\$359,966), (2015-2018). Award FA9550-15-1-0163

“REU Site: Interfaces and Surfaces” NSF DMR, Senior Investigator, \$330,000 (\$10,890) (2015-2018) Award DMR: 1460863

“Enhanced Production of Advanced Biofuels through Model Guided Synthetic Biology”, NSF CBET Energy for Sustainability, Principal Investigator, \$336,051 (\$336,051), (2015-2017). Award CBET:1437836

“Intracellular Localization of Biosynthetic Pathways for Conversion of Lipids to Dicarboxylic Acids in Oleaginous Yeast *Yarrowia Lipolytica*”, NSF CBET Biotechnology, Biochemical, & Biomass Engineering, Principal Investigator, \$313,127 (\$313,127), (2014-2017). Award CBET:1403099

COMPLETED FUNDING

“BioNanomanufacturing of Carbide Aerogels”, SC Space Grant Consortium, Co-Principal Investigator, \$50,000 (\$12,500), (2015-2016).

“Use of High-Throughput Sequencing to Understand Protein Evolution”, SC INBRE Bioinformatics Pilot Project, Principal Investigator, \$10,000 (\$10,000), (2014-2016). Award NIH:P20GM103499

“Research Opportunities for Women in Biomolecular Engineering” SC EPSCoR Track III, Principal Investigator, \$10,000 (\$10,000), (2016).

“Palmetto Academy: Synthetic Biology Enabled Recycling of Waste for Life Support”, SC Space Grant Consortium, Principal Investigator, \$36,000 (\$36,000), (2016).

“Biocatalytic Conversion of Rendered Animal Fats to Value Added Products Including Omega-3 Fatty Acids”, Animal Coproducts Research & Education Center, Principal Investigator, \$27,500 (\$27,500), (2014-2015).

Prior to Clemson

“Enabling Structural Studies of Force Activated Adhesion Complexes”, National Institutes of Health, Principal Investigator, \$126,767 (\$83,321), (2011-2012)

“A Novel Extended-State Complex between VWF A1 and Platelet GPIb”, American Heart Association, Principal Investigator, \$83,000, (\$20,500), (2010).

“Computation Models for Reductive Dechlorination of Dioxins and Dibenzofurans”, Howard Hughes Medical Institute, Investigator, \$3000 (\$3000), (2002).

Additional Research Funding

Open Access Funding Initiative for Publication in Biotechnology for Biofuels, Principal Investigator, \$1,041.25 (\$1,041.25), (2016).

“Integration of Computation, Evolutionary Design, and Genomics for High-Throughput Engineering of Protein-Ligand Interactions”, CoES TIGER Grant Program, Principal Investigator, \$18,000 (\$18,000), (2014).

“Yeast Sustainable Chemical Production in Engineered Microorganisms”, Clemson Creative Inquiry, Principal Investigator, \$6,000 (\$6,000), (2015-Current).

“Engineering Protein Post-Translational Modification for Therapeutics”, Clemson Creative Inquiry, Principal Investigator, \$13,700 (\$13,700), (2013-Current).

“Sustainable Chemical Production in Engineered Microorganisms”, Clemson Creative Inquiry, Principal Investigator, \$23,500 (\$23,500), (2013-Current).

GRADUATE STUDENT ADVISING

Doctoral Graduates

Wilson, A. Nolan, “Drug Delivery with Feedback Control in Bioresponsive Hydrogels” (2014)
Co-advised with Anthony Guiseppi-Elie.

Current Graduate Advising

Shabbir-Hussain, Murtaza, “Metabolic engineering tools for *Yarrowia lipolytica*” (Expected 2018)

Yaguchi, Allison, “Genetic and enzymatic dynamic control of metabolic pathways” (Expected 2019)

Spagnuolo, Michael, “Metabolic Engineering of *Yarrowia lipolytica* for Materials Synthesis” (Expected 2020)

Wang, Weigao, “Engineering Robust Enzyme Activity” (Expected 2020)

Hilbert, Maxwell, “Fundamental Studies of Enzyme Immobilization” (Expected 2021)

Rives, Dyllan, “Genetic and Metabolic Engineering of Oleaginous Yeast for Health-related Applications” (Expected 2021)

Wintenberg, Molly, “Engineering of Biological Radiation Sensors” (Expected 2021)

Current Postdoctoral Advising

Gao, Difeng, “Engineering omega-3 production in *Yarrowia lipolytica* by rerouting lipid metabolism” (February 2015-Current)

Former Postdoctoral Advising

Rodriguez, Gabriel, “Fatty alcohol production in *Yarrowia lipolytica*” (December 2014-February 2017). Currently at Ginkgo Bioworks.

Technical Staff Supervision

Anglin, Scott – Lab Manager (March 2017 – current)

Smith, Spencer – Lab Technician (May 2017 – current)

Gambill, Lauren – Lab Technician (May 2017 – August 2017)

Wiseman, William – Lab Technician (May 2016 – August 2016)

Cook, Taylor – Lab Technician (May 2015 – August 2015)

Dissertation Committees

Lisa Manglass (EEES, 2021)

Herbert Huttanus (Virginia Tech, Biosystems Eng., 2020)

Rui Xiao (EEES, 2019)

Saptarshi Chokraborty (2018)

Siva Dasetty (2018)

Juan Wang (07/07/16)

Ming He (07/16/13)

Masters Committees

Emanuele Giolgi (ME, 11/08/16)

Siva Dasetty (07/20/15)

Oral Qualifying Committee (#Chair)

Bushra Rahman (2016)#

Siva Dasetty (2015)

Alphonse Hakizimana (2015)#

Saptarshi Chokraborty (2014)

Jing Jin (2013)

Christine Duval (2013)

Ozgun Ozdemir (2013)

UNDERGRADUATE STUDENT ADVISING

Departmental Honors Graduates

Taylor Cook. “Towards engineering selective biosensors using continuous evolution” (2015; ChBE)

Erika Arvay. “Improving bioprocesses using genetic and enzymatic dynamic control of metabolic pathways” (2017, ChBE)

Matt Brabender. “TBD” (Expected 2019, ChBE)

UNDERGRADUATE RESEARCHERS

67 Total (‡ 1 URM; * 30 Woman; @ 2 High School; # 5 Grad School)

1. Taylor Cook – Phage assisted continuous evolution (13-15)#
2. Parker Hume – Metabolic engineering of omega-3 fatty acids (13-15)#
3. Katie Stahel – Engineering tyrosine sulfation in bacteria (13-14)*
4. Joseph Redzikowski – Microbial metabolism of aromatics (13-14)
5. James Foster – Microbial metabolism of aromatics (13-14)#
6. Thomas Pavelka – Engineering tyrosine sulfation in bacteria (13-14)
7. Dennish Parekh – Engineering tyrosine sulfation in bacteria (13)
8. Syed Bukhari – Engineering tyrosine sulfation in bacteria (13)
9. Sam Williams – Genetic engineering tools for *Yarrowia lipolytica* (13-15)
10. David Carey – Microbial metabolism of aromatics (13-14)
11. Yancey Appling – Microbial metabolism of aromatics (13)
12. Erika Arvay – Dynamic Regulation of Biodiesel Production (14-17). PhD in ChE at Northwestern University in the Mike Jewitt Group *#
13. Lauren Gambill – Genetic engineering tools for *Yarrowia lipolytica* and Xylose metabolism (14-17). PhD in Molecular Biosciences at Rice University in the Ramon Gonzalez Group *#

14. William Wiseman – Engineering tyrosine sulfation in bacteria; Genetic engineering tools for *Yarrowia lipolytica* (14-16) MS in Biotechnology at Northwestern University in the Mike Jewitt Group #
15. Kyle Pazzo – Engineering tyrosine sulfation in bacteria (14-15) #
16. Hayden Campbell – Metabolic engineering of omega-3 fatty acids (14-15)
17. Justin James – Metabolic engineering of waste metabolism (14)
18. Meg Wilkes – Engineering tyrosine sulfation in bacteria (14-15) *
19. Andrew Dippre – Engineering tyrosine sulfation in bacteria (14-15)
20. Charlie Kessler – Dynamic regulation of biodiesel production (14-15)
21. Megan Stahlberger – Genetic engineering tools for *Yarrowia lipolytica* (14)*
22. Mohit Gahndi – Engineering tyrosine sulfation in bacteria (14)
23. Patricia Jokl – Engineering tyrosine sulfation in bacteria (14)*
24. Lauren Reed – Phage assisted continuous evolution (14) @*
25. Thomas Stanton – Engineering tyrosine sulfation in bacteria (14) @
26. Joy Jones – Engineering tyrosine sulfation in bacteria (14) *
27. Jeremy Fowler – Metabolic engineering of omega-3 fatty acids (14-15)
28. Sarah Knowles – Metabolic engineering of omega-3 fatty acids (14-15)*
29. Spencer Smith – Genetic Engineering Tools for *Yarrowia lipolytica* (15-17)
30. Jeanette Rodriguez – Engineering tyrosine sulfation in bacteria (15)‡*
31. Phillip Baker – Genetic engineering tools for *Yarrowia lipolytica* (15-17)
32. Will Hardy – Metabolic engineering of omega-3 fatty acids (15)
33. Mary Kate Rumph – Enzyme engineering (15-16) *
34. Tiffany Yu – Enzyme engineering (15-16) *
35. Savannah Bowman – Enzyme engineering (15) *
36. Julia Borglin – Engineering tyrosine sulfation in bacteria (15) *
37. Jessica Zielinski – Dynamic regulation of biodiesel production (15-16) *
38. Joseph Whitaker – Genetic engineering tools for *Yarrowia lipolytica* (15)
39. Jacob Livingston – Enzyme engineering (15)
40. Tanner Karp – Engineering tyrosine sulfation in bacteria; Enzyme engineering (15-16)
41. Kylie Burkes – Microbial metabolism of aromatics (15-16) *
42. Kaitlyn Scola – Metabolic engineering of waste metabolism (15-17) *
43. Matt Brabender – Metabolic engineering of waste metabolism (15 - current)
44. Meredith Bailey – Metabolic engineering of materials biosynthesis (16 - current) *
45. Robert Barrett – Genetic Engineering tools for *Yarrowia lipolytica* (16-17)
46. Erin Mihealsick – Dynamic regulation of biodiesel production (16 - 17) *

47. Alana Robinson – Microbial metabolism of aromatics (16-17) *
48. Vineeth Sama – Metabolic engineering of xylose metabolism (16)
49. Daniel Jagson – Metabolic engineering of waste metabolism (16)
50. Caroline Moody (NCSU) – Genetic Engineering tools for *Yarrowia lipolytica* (16)*
51. Emma Ressler – Microbial metabolism of aromatics (16) *
52. Michael Xie (Ohio) – Enzyme immobilization engineering (16) *#
53. Shanna Pearce – Microbial metabolism of aromatics (16) *
54. Jenna Schoenfield (MSU) – Dynamic regulation of biodiesel production (17) *
55. Cheyenne Brady – Genetic Engineering tools for *D. hansenii* (17 – current) *
56. Calvin Martin – Genetic Engineering tools for *Yarrowia lipolytica* (17 – current)
57. Alex Summers – Engineering radiation resistant microbes (17 – current)
58. Jack Tabb – Dynamic regulation of biodiesel production (17 - current)
59. Sara Edgecomb – Genetic Engineering tools for *Yarrowia lipolytica* (17 – current) *
60. Sarah Smith - Microbial metabolism of aromatics (17 – current)*
61. Adam Beitz – Enzyme engineering (17 – current)
62. Grant Wilson - Genetic Engineering tools for *Yarrowia lipolytica* (17 – current)
63. Camillo Suescum – Engineering laccase production (17 – current)
64. Venkata Chaluvadi – Renewable Chemicals & Fuels from Yeast (17 – current)
65. Danielle Acker – Renewable Chemicals & Fuels from Yeast (17 – current) *
66. Elizabeth Huntley – Precision Genome Editing (17 – current) *
67. Jillian Laird – Precision Genome Editing (17 – current) *

STUDENT HONORS & AWARDS

1. SBFC39 Poster Session Finalist (A. Yaguchi, 2017)
2. **ChBE Graduate Researcher of the Year (M. Shabbir Hussain, 2017)**
3. **ChBE Teaching Assistant of the Year (A. Yaguchi, 2017)**
4. NASA SC Space Grant Undergraduate Research Fellowship (M. Brabender, 2017)
5. NASA Center Internship (M. Brabender, 2017)
6. ChBE Research Symposium, First Place in Oral Presentation (M. Shabbir Hussain, 2017)
7. ChBE Research Symposium, First Place in Poster Competition (A. Yaguchi, 2017)
8. **NSF Graduate Research Fellowship Program – Awardee (L. Gambill, 2017)**
9. **NSF Graduate Research Fellowship Program – Honorable Mention (E. Arvay, 2017)**
10. **CU College of Science Outstanding Undergraduate Research Award (L. Gambill, 2017)**

11. SIMB Travel Award to SBFC Meeting (A. Yaguchi, 2017)
- 12. Goldwater Scholarship Winner (J. Zielinski, 2017)**
- 13. Fulbright Fellowship Semifinalist (K. Scola, 2017)**
14. Biomolecular Engineering REU – Best Poster (L. Gambill, 2016)
15. DOE Travel Award to SIMB Annual Meeting (M. Shabbir Hussain, 2016)
16. NASA SC Space Grant Undergraduate Research Fellowships (E. Arvay, 2016)
17. ACCAIC Creativity & Innovation Fellowship (S. Smith, 2016)
18. ACCAIC Creativity & Innovation Fellowship (E. Arvay, 2016)
19. Southeast Regional AIChE Poster Presentation Finalist (W. Wiseman, 2016)
20. ChBE Research Symposium, Honorable Mention in poster competition (A. Yaguchi, 2016)
21. Calhoun Honors College Award (E. Arvay, 2016, 2017)
22. ASM – South Carolina Fall Meeting, 2nd Place Graduate Student (M. Shabbir Hussain, 2015)
23. NASA SC Space Grant Undergraduate Research Fellowships (E. Arvay, 2015)
24. ACCAIC Creativity & Innovation Fellowship (L. Gambill, 2015)
25. ACCAIC Creativity & Innovation Fellowship (K. Pazzo, 2015)
26. Calhoun Honors College Award (S. Williams, 2014)
27. Calhoun Honors College Award (T. Cook, 2014)
28. NASA SC Space Grant Undergraduate Research Fellowships (T. Cook, 2014)
29. NASA SC Space Grant Undergraduate Research Fellowships (J. Redzikowski, 2014)
30. ChBE Research Symposium, 2nd Place in Poster Competition (M. Shabbir Hussain, 2014)

TEACHING

Courses Taught

- ChE 4070, Unit Operations Lab II, F12.
- ChE 3300, Mass Transfer & Separation, S13, S14, S15
- ChE 4500, Chemical Reaction Engineering, F13, F14, F15
- BMOLE 4250/6250, Biomolecular Engineering, S15, S16, S17, S18
- ChE 8050, Graduate Reaction Kinetics, F16, F17
- ChE 8450, Special Topics: Methods in Protein Engineering & Synthetic Biology, F17
- ChE 3950, Honors Research, F13, S14, F14, S15, S16, F17, S18
- ChE 4950, Honors Research, F14, F16
- ChE 4970, Honors Thesis, S15, S17
- ChE X990, Creative Inquiry –Sustainable Chemicals from Yeast, F15, S16, F16, S17, F17

ChE X990, Creative Inquiry – Sustainable Chemicals from Bacteria, S13, F13, S14, F14, S15, F15, S16, F16, S17, F17

ChE X990, Creative Inquiry – Protein Therapeutics, F13, S14, F14, S15, F15, S16, F16, S17, F17

ChE X990, Creative Inquiry – Getting to Mars with Microbes, F17

CES 1900, Mentor Guided Inquiry – Su14

ChE 8910, Masters Research, F14, S15

ChE 9910, Doctoral Research, S13, F13, S14, F14, S15, F15, S16, F16, S17, F17

Courses Developed

ChE 8450, Special Topics: Genetic Engineering and Synthetic Biology

BMOLE 4250/6250, Biomolecular Engineering

ChE 1990, 2990, 3990, 4990, Yeast Engineering CI

ChE 1990, 2990, 3990, 4990, Bacteria Engineering CI

ChE 1990, 2990, 3990, 4990, Protein Therapeutics CI

ChE 1990, 2990, 3990, 4990, Getting to Mars with Microbes CI

Guest Lectures

MICRO 4000, Senior Seminar in Microbiology: Synthetic Biology (2017)

BMOLE 4250, Biomolecular Engineering: Pathway Engineering (2013, 2014)

UNIVERSITY AND PUBLIC SERVICE

Committees

University: Alternate Member, Institutional Biosafety Committee (2017-2019)
 Elected Member (ECAS), University Research Council (2016-2019)
 Alternate Senator, Faculty Senate (2016-2017)
 Member, Faculty Senate Finance Committee (2016-2017)

College: Elected Member, Dean's Advisory Board (2016 - current)
 Member, ECAS Financial and Budgeting Committee (2016)
 Member, ADRGS Search Committee (2013)

Department: Member, Department Chair Search Committee (2017)
 Member, Faculty Search Committee (2016-2017)
 Elected Member, Department Chair's Reappointment Committee (2016)
 Member, Undergraduate Studies Committee (2015 - 2016)
 Member, Graduate Recruitment Subcommittee (2013 - current)

Chair, Graduate Recruitment Subcommittee (2015 - current)
Member, Graduate Studies Committee (2013 - current)
Recording Secretary, ChBE Faculty Meeting (2013 -2014)
Member, Facilities, Safety, & Security Committee (2012 - 2015)

Other: ADRGS Seminar on Department of Defense Funding (2016)
 Postdoctoral Association Panelist (2015)

Public Service and Outreach

Physical and Biochemical Water Purification: Health & Biotechnology Camp (2015)
Enzymes in Chemical Engineering: Girl Scouts Day (2015)
Physical and Biochemical Water Purification: WISE Outreach (2015)
Introduce Engineering to 4th Graders at Clemson Elementary (2014)

Professional Development

EPSCoR IDeA Proteomics Workshop (2017)
Tiger Advocate Training (2017)
DOE Joint Genome Institute: KBase Workshop (2017)
DOE Joint Genome Institute: Metabolomics Workshop (2017)
Workshop on Holistic STEM Faculty Development (2017)
Training on Data Security and Privacy (2016)
Training on Eliminating Sexual Violence on Campus (2015)
SACHE Process Safety Course – Chevron, Richmond, CA (2013)
Chemical Hygiene Plan Training (2012-current)
Developed junior faculty peer mentoring group in ChBE (2012-current)

July 21, 2017