

DAVID M. BLERSCH, Ph.D.

Associate Professor of Ecological Engineering

Biosystems Engineering Department

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EDUCATION

University of Maryland, College Park	Biological Resources Engineering	Ph.D. (2010)
University of Maryland, College Park	Biological Resources Engineering	M.Sc. (2004)
University of Notre Dame	Civil Engineering	B.Sc. (1993)

PROFESSIONAL APPOINTMENTS

Associate Professor	Biosystems Engineering, Auburn University	2019 – present
Research Fellow	Marshall Space Flight Center, NASA, Huntsville, AL	2020 summer
Assistant Professor	Biosystems Engineering, Auburn University	2013 – 2019
Research Assistant Professor	Civil Engineering, SUNY Buffalo	2011 – 2013
Postdoctoral Scholar	Civil Engineering, SUNY Buffalo	2008 – 2013
Research Fellow	USDA National Needs, University of Maryland	2004 – 2008
Graduate Research Assistant	Bio. Resources Engineering, University of Maryland	1999 – 2004
Project Engineer	PCCI Marine & Enviro. Engg., Alexandria, VA	1993 - 1999

PROFESSIONAL REGISTRATION: E.I.T. (State of Indiana, 1993)
Associate Certified Ecological Designer (AEES, 2014)

HONORS, AWARDS, AND RECOGNITIONS

2020	Faculty Fellow , NASA Marshall Space Flight Center Aerospace Fellowship Program (\$19,000)
2019	Spirit of Sustainability Award (Group Initiative) . Office of Sustainability, Auburn University, to the AU Aquaponics Project.
2018	Faculty Research Award , Junior Faculty, Auburn University Samuel Gin College of Engineering Alumni Engineering Council (\$3000)
2017	President's Outstanding Collaborative Units Award , Office of the Provost, Auburn University, (\$5000)
2017	Dean's Research Award , Junior Faculty, College of Agriculture, Auburn University
2017	Dean's Grantsmanship Award , College of Agriculture, Auburn University
2016	Faculty Project Team Award , College of Agriculture, Auburn University
2013	Auburn University New Faculty Scholar , Biggio Center for the Enhancement of Teaching and Learning, Auburn University
2013	Civic Engagement Research Fellow , Civic Engagement and Public Policy Strategic Initiative, State University of New York at Buffalo (\$3500)
2003-2007	National Needs Fellowship , U.S. Department of Agriculture (\$84K)
2007	JK Goldhaber Travel Grant , University of Maryland (\$1000)
2006	Student Travel Grant , American Ecological Engineering Society (\$500)
2003	Consortium Fellowship , Penn. Space Grant Consortium, Closed Environmental Systems for Extreme Environments (\$1500)

RECOGNITION OF GRADUATE AND UNDERGRADUATE STUDENTS SUPERVISED

- 2026 Student Travel Fellowship, AEES.** Natacha Kakama, Ph.D. student, received from the American Ecological Engineering Society (AEES), for travel to present at the annual conference. April 2026.
- 2026 Graduate Scholarship of AWWA.** Natacha Kakama, Ph.D. student, received from the Alabama-Mississippi Section of the American Water Works Association for excellence in graduate academic work. April 2026.
- 2026 National Student Employee of the Year Award.** Natacha Kakama, Ph.D. student, received from the Nation Student Employment Association (Auburn, Maine) for excellence in student academic work. April 2026.
- 2026 Provost's Award for Excellence in Technology and Innovation.** Grace Gilber, Undergraduate Student, Auburn University. April 2026.
- 2025 Third Place, ASABE Bioprocess Startup Competition.** Natacha Kakam, Ph.D. student, and team, from the American Society of Agricultural and Biological Engineers, November 2025.
- 2025 Graduate Merit Scholarship.** Natacha Kakama, Ph.D. Student, received the fellowship from Alpha Kappa Alpha Educational Advancement Foundation.
- 2023 Gavin Graduate Fellowship.** Shokouh Mousavi, Ph.D. Student, received fellowship from the Samuel Ginn College of Engineering, Auburn University (\$3000 annual for 4 years). June 14, 2023.
- 2022 First Place in CoA Poster Presentation.** Marisa Rodriguez McGehee, M.S. Student, received first place in the College of Agriculture (CoA) Graduate Student Presentation in the M.S. category under the Biosystems Engineering/Biotechnology Research Focus Area. Her poster title was "Proposing Treatment of Aquaponics and Aquaculture Wastewater by Novel Bead Reactor". October 28, 2022.
- 2022 Graduate Student Council Travel Fellowship.** Ana Gabriela Itokazu, Ph.D. student, received from Auburn University Graduate Student Council, September 2022.
- 2022 Alley Family Fellowship,** Zahra Karimi, Ph.D. Student (Chemical Engineering), from Samuel Ginn College of Engineering, Auburn University. March 2022.
- 2022 First Place Design (Team Award),** Ana Gabriela Itokazu, Ph.D. student, from Unleash Hack 2021 Hack-a-Thon, Water Environment Federation. May 2022
- 2022 Editor's Choice Article Award,** Caroline Blanchard, M.S. student (Horticulture), from journal *Horticulturae*, MDPI, for her paper entitled "Effect of pH on cucumber growth and nutrient availability in a decoupled aquaponic system with minimal solids removal". March 2022.
- 2019 Third Place, Poster Competition.** Nicholas Burgess, M.S. Student, received third place in the Alabama Water Resources Conference Student Competition with a poster entitled "Nutrient recovery from aquaponics wastewater using algal turf scrubber and the utilization of filamentous algae for lactic acid fermentation". Sept. 2019.
- 2018 Paper of the Year.** Gabriel Proano Pena, Ph.D. Student (Industrial & Systems Engineering), from the Journal of Contemporary Water Research and Education, Universities Council on Water Resources, for his paper entitled "Design and manufacturing of high surface area 3D-printed media for moving bed bioreactors for wastewater treatment". May 2018.
- 2018 Graduate Student Council Travel Fellowship.** Ali Khoshkhoo, Ph.D. student (Industrial & Systems Engineering), received from Auburn University Graduate Student Council, September 2018 (\$500).
- 2016 Master's Thesis Award.** Manjinder Kaur, M.S. student (Biosystems Engineering), Samuel Ginn College of Engineering, Auburn University. Her thesis title was "Effect of

- substratum topography on algal turf colonization and productivity under different nutrient condition”. May 2016.
- 2016** **Finalists at EPA P3 Competition, US Science and Engineering Expo.** A student group co-advised by the candidate, and consisting of undergraduates Olivia Elliott, Stephanie Gray, Michael McClay, Bakar Nassief, Ann Nunnelly, and Eric Vogt, and graduate students Joseph Ekong, Kamran Kardel, Ali Khoshkhoo, and Gabriel Proaño, attained finalist position in the US EPA P3 Competition, resulting in Phase II funding awarding. April 15, Washington, DC.
- 2014** **Student Design Competition.** Manjinder Kaur, Olivia Elliott, Jesse Blanton, and Ryan McGehee received 1st place in the student design competition at the American Ecological Engineering Society 2014 Annual Conference, Charleston, SC.

COURSES TAUGHT

Instructor of Record

BSEN 5510/6510: Introduction to Ecological Engineering *Fall 2014-Present*
Biosystems Engineering Department, Auburn University

BSEN 5230/6230: Waste Management and Utilization for Biosystems *Spring 2014, 2015, 2020-Present*
Biosystems Engineering Department, Auburn University

ENGR 1110: Introduction to Biosystems Engineering *Fall 2015, 2016*
Biosystems Engineering Department, Auburn University *Spring 2016*

BSEN 7140: Algae Systems Engineering *Spring 2016, 2018, 2020, 2022, 2024*
Biosystems Engineering Department, Auburn University

BSEN 7900: Introduction to Aquaponics *Fall 2018*
Biosystems Engineering Department, Auburn University *Spring 2019*

CSES 3270: Methods in Stream Restoration *Fall 2016*
Co-taught with Crop, Soil & Environmental Science, Auburn University

CIE 565 Biological Principles of Environmental Engineering
Department of Civil, Struct. and Environmental Engineering, SUNY Buffalo *Fall 2011, 2012*

CIE 642 Ecological Systems Modeling *Spring 2009, 2011-2013*
Department of Civil, Struct. and Environmental Engineering, SUNY Buffalo

CIE 643 Practicum in Ecological Restoration *Fall 2009, 2010, 2012*
Ecosystem Restoration Graduate Program, SUNY Buffalo

Course Teaching Assistant

<i>BRES 4000 Biological Resources Engineering Capstone</i> Biological Resources Engineering Department, University of Maryland	2003 – 2004
<i>NRES 4000 Natural Resources Management Capstone</i> Natural Resources Management Program, University of Maryland	2000-2002
<i>NRES 4010 Tropical Ecology and Sustainable Development</i> Natural Resources Management Program, University of Maryland	2001-2003
<i>BRES 2000 AutoCAD Design for Engineering</i> Biological Resources Engineering Dept., University of Maryland	2001

RESEARCH INTERESTS

- Ecological engineering approaches to nutrient resource recovery in biosystems;
- Ecotechnology development for remediation of water and wastewater with algae cultivation;
- Algae biomass production for carbon sequestration and biofuels feedstock;
- Additive manufacturing for bio-environmental applications;
- Aquaponics food production and resource optimization;
- Phyto- and phyco-remediation of impacted waters;
- Ecological systems modeling and Emergy synthesis modeling;
- Aquatic ecosystem restoration.

GRADUATE STUDENTS SUPERVISED/COMPLETED

As a Major/Co-Major Advisor

1. Ko, Helen. M.S. Biosystems Engineering. Investigation into the role of bacteria biofilms in the initial attachment and colonization stages of filamentous green algae in lab bench-scale algal turf scrubbers. August 2024.
2. Viticoski, Roger. Ph.D. Civil Engineering. Spatial distribution and mass transport of Per- and Polyfluoroalkyl substances (PFAS) in surface water systems. Auburn University. December 2022.
3. Karimi, Zahra. Ph.D. Chemical Engineering. Investigating the effect of substrate characteristics on growth and cultivation of attached algae. Auburn University. May 2022.
4. Liu, Meizhu. M.S. Biosystems Engineering. Bioaccumulation and toxicity of Perfluoroalkyl substances (PFAS) on *Scenedesmus obliquus*. Auburn University. May 2020.
5. Burgess, Nicholas. M.S. Biosystems Engineering. Lactic acid conversion of algal biomass grown on tilapia wastewater. Auburn University. May 2020.
6. Viticoski, Roger. M.S. Civil Engineering. Evaluation of an algal turf scrubber approach for the remediation of Perfluoroalkyl substances (PFAS). Auburn University. May 2019.
7. Schott, Mauricio H. Ph.D. Industrial & Systems Engineering. Additive manufacturing for space life support applications. Auburn University. May 2019.
8. Proano Pena, Gabriel. Ph.D. Industrial & Systems Engineering. 3D-printed custom substratum for fast functional responses from microbial colonization. Auburn University. December 2018.
9. Khooshkhoo, Ali. Ph.D. Industrial & Systems Engineering. Design and manufacture of surface topography with additive manufacturing: Properties and applications. Auburn University. August 2018.
10. Ekong, Joseph. Ph.D. Industrial & Systems Engineering. Effect of three-dimensional substratum features on benthic algal biomass productivity. Auburn University. May 2017.
11. Rains, John. M.S. Biosystems Engineering. Pathogen removal in algal turf reactors for wastewater treatment. Auburn University. May 2016.

12. Kaur, Manjinder. M.S. Biosystems Engineering. Application of surface roughness engineering principles to optimize benthic algae biofilm colonization and biomass characteristics. Auburn University. May 2016.
13. Kardel, Kamran. Ph.D. Industrial & Systems Engineering. An analytical and experimental study on 3D-printed custom surfaces for benthic algal biofilms. Auburn University. May 2016.
14. Alzate, Andres. M.S. Civil Engineering. Development of a method for determining tensile strength of algal filaments using motion capture. SUNY Buffalo. May 2013.
15. Menon, Rahul. M.S. Civil Engineering. Ecosystem modeling of the Conewango Creek wetland system. SUNY Buffalo. May 2012.

As a Committee Member

1. Tasnim, Rodela. M.S., Biosystems Engineering. Evaluation of Biochar-Entrained Porous Concrete for Heavy Metal Removal from a Synthetic Stormwater. May 2026.
2. Paradeisis-Stathis, Savvas. Ph.D., Crop Soil & Environmental Science. Reconstructions of Aquatic Primary Producer Dynamics, Cyanobacteria Dominance and Cyanotoxin Concentrations in Subtropical Lake Ecosystems Throughout the Holocene and Late Pleistocene. August 2025.
3. Raj, Chhabi. M.S., Crop Soil & Environmental Science. Effect of manure application rates on sediment and nutrient loss under conventional and no-tillage system. August 2024.
4. Wang, Shangung. Ph.D., Biosystems Engineering. Development of CRISPR-based engineering tools for *Clostridium tyrobutyricum* and metabolically engineer strain for enhanced production of butanol and hexanoic acid. December 2024.
5. Guo, Na. Ph.D. Biosystems Engineering. Metabolically engineered Bacillus for the production of enantiomerically pure 2,3-buanediol and derivatives. August 2024
6. Wang, Danyang. Ph.D. Civil Engineering. Development of Qualitative and Quantitative Analytical Methods for the Analysis of Per-and Polyfluoroalkyl Substances (PFAS) in Environmental Samples by UHPLC-MS/MS. December 2023.
7. Cherones, Jessa. M.S. Biosystems Engineering. Promoting nitrification in poultry processing wastewater treatment using microalgae and biochar. Auburn University. August 2022.
8. Wang, Qichen. Ph.D. Biosystems Engineering. Algal biomass production and nutrient removal from high strength anaerobic digestion. Auburn University. May 2022.
9. Sprague, Dillon. M.S. Biosystems Engineering. Solids retention governs nitrification of poultry processing wastewater using an algal-bacterial consortium. Auburn University. December 2021.
10. Ayipio, Emmanuel. Ph.D. Horticulture. Utilizing Aquaculture Effluent Efficiently in Cucumber Production through Substrate Choice and Fertigation Management. Auburn University. August 2021.
11. Lamb, Avery Neal. M.S. Crop, Soil & Environmental Sciences. Using sediments to identify drivers of cyanobacteria, cyanotoxins, and eutrophication in the shallow, subtropical lakes of Florida, USA. Auburn University. August 2021.
12. Goodling, Peyton. M.S. Biosystems Engineering. Development of a predictive model for taste and odor episodes in regional drinking water reservoirs. Auburn University. August 2021.
13. Thomas, Morgan. M.S. Biosystems Engineering. Spatial and temporal investigation of taste and odor-producing microorganisms in Lake Saugahatchee. Auburn University. August 2021.
14. Kalvakaalva, Rohit. M.S. Biosystems Engineering. Process modeling and life cycle assessment of a large pilot-scale aquaponics facility at Auburn University. Auburn University. December 2020.
15. Blanchard, Caroline. M.S. Horticulture. Improving greenhouse cucumber production in de-coupled aquaponic systems. Auburn University. December 2019.
16. Jimenez-Bonilla, Pablo. Ph.D. Biosystems Engineering. Enhancing the robustness of *Clostridium saccharoperbutylacetonicum* N1-4 for butanol production through metabolic engineering and cell immobilization strategies. Auburn University. December 2019.
17. Shi, Ran. M.S. Horticulture. Effects of air and root-zone temperatures on growth and quality of indoor hydroponic lettuce. Auburn University. December 2019.

18. Bankston, Elizabeth. M.S. Biosystems Engineering. Enhancement of nutrient and organic removal from poultry litter using anaerobic digestion and subsequent algal growth. Auburn University. August 2019.
19. Duke, Caleb. M.S. Crop, Soil & Environmental Sciences. Evaluation of photogrammetry at different scales. Auburn University. May 2018.
20. Shakya, Rajdeep. Ph.D. Biosystems Engineering. Biofuel production from hydrothermal liquefaction of algae and its subsequent upgrading. Auburn University. December 2017.
21. Landers, Erin. M.S. Horticulture. Effects of Nutrient Solution Temperature on Lettuce Grown in a Nutrient Film Technique System. Auburn University. December 2017.
22. Li, Mengyuan. M.S. Environmental Sciences. Effects of grazers and elevated temperature on the dynamics of a wastewater algal treatment system. Columbus State University. May 2017.
23. Wang, Xiaofei. Ph.D. Biosystems Engineering. Comparison between radio frequency (RF) and traditional heating assisted alkaline pretreatment on lignocellulosic biomass. Auburn University. August 2015.
24. Mitra, Subhasis. Ph.D. Biosystems Engineering. Anthropogenic and Climate Impacts on Groundwater Resources in the Lower Apalachicola-Chattahoochee-Flint River Basin. Dec. 2014.
25. Chew, Edward Schuyler. M.S. Civil Engineering. Creating a replacement fishery within the Tuscarora Nation wetland site. University at Buffalo, State University of New York. May 2012.

Dissertation Read/Examined

1. Hariz, Harizah. Ph.D. Biological Sciences. Filamentous algae as a nutrient scrubber for agricultural drainage treatment. University of Waikato, New Zealand. May 2023.
2. Hoag, Leticia Fantini. Ph.D. Fisheries, Aquaculture & Aquatic Sciences. Bioeconomic analysis of catfish produced in in-pond raceway systems. Auburn University. December 2021.
3. Polozola, Michael. Ph.D. Horticulture. Phosphorus nutrition of Pecan. Auburn Univ. May 2018.
4. Habberfield, Michael. Ph.D. Geography. Functional connectivity for wildlife populations across spatially complex landscapes. University at Buffalo, State University of New York. May 2016.

CURRENT GRADUATE STUDENTS

- Mousavi, Shokouh (Ph.D., Biosystems Engineering), Major Advisor. Tentative title: Filamentous algae cultivation approaches for resource recovery in closed environment agriculture. Expected completion: May 2027.
- Kakama, Natacha (Ph.D., Biosystems Engineering), Major Advisor. Tentative title: Tidal flow wetland systems for treatment of poultry processing wastewater. Expected completion: May 2028.
- Wingard, Sally. (M.S., Biosystems Engineering), Major Advisor. Tentative title: Production of biomolecules from filamentous algal cultivation from aquaculture wastewater. Expected completion: December 2027.

POST-DOCTORAL FELLOW/RESEARCH ENGINEERING HOSTED

- Dr. Suan Shi, Post-Doctoral Fellow, January 2018 – December 2019.
- Dr. Gabriel Proano Pena, Post Doctoral Fellow, October 2024 – June 2026.

VISITING SCHOLARS HOSTED

- Ms. Beatrice Farda, Ph.D. Student, University of L'Aquila, August 2023 – December 2023.
- Dr. Kang Zhenjun, Associate Professor from Qinzhou University, Guangxi, China. January 2023 – December 2023.

UNDERGRADUATE RESEARCH ASSISTANTS

- Evan Dong, Biosystems Engineering, Auburn University. May 2026 – present.
- Marrin Morris, Biosystems Engineering, Auburn University. May 2026 – present.
- Lily Ward, Biomedical Sciences, Auburn University. June 2026 – present.

- Jayla Lawley, Biosystems Engineering, Auburn University. May 2025 – present. AU Undergraduate Research Fellow.
- Grace Gilbert, Biosystems Engineering, Auburn University. May 2025 – present.
- Neal Mooney, Biosystems Engineering, Auburn University. May 2025 – present.
- Grant Raegnart, Biosystems Engineering, Auburn University. May 2024 – May 2025.
- Sally Wingard, Biosystems Engineering, Auburn University. May 2024 – May 2026. AU Undergraduate Research Fellow.
- Lauren Fort, Biosystems Engineering, Auburn University. May 2024 – May 2025.
- Anna Perry, Biology, Rhodes College. Summer 2024. NSF REU Fellow.
- Caroline Sanders, Biosystems Engineering, Auburn University. Sept. 2022 – May 2024. AU Undergraduate Research Fellow.
- Melisa Shaffer, Biosystems Engineering, Auburn University. Sept. 2022 – May 2024. AU Undergraduate Research Fellow.
- Journie Graham. Bioengineering, U. Texas San Antonio. Summer 2023, NSF REU Fellow.
- Ansley Scott, Biosystems Engineering, Auburn University. Sept. 2021 – May 2023. AU Undergraduate Research Fellow.
- Julian Yee, Biosystems Engineering, U. Tennessee. Summer 2022. NSF REU Fellow.
- Paige Seibert. Biological & Agricultural Engineering, North Carolina State U. Summer 2022. NSF REU Fellow.
- William Rud. Biosystems Engineering, Auburn University. Jan. 2020 – May 2021. AU Undergraduate Research Fellow.
- Peyton Arnold. Biosystems Engineering, Auburn University. Jan 2020 – May 2021. AU Undergraduate Research Fellow.
- Hudson Land. Biosystems Engineering, Auburn University. Jan. 2019 – May 2020. AU Undergraduate Research Fellow.
- Rachel Howell. Biosystems Engineering, Auburn University. Jan. 2018 – May 2019. AU Undergraduate Research Fellow.
- Miles Johnson. Physics Education, Moorehouse College. Summer 2018. NSF REU Fellow.
- Mary Szoka. Biosystems Engineering, Auburn University. Summer 2017.
- Elizabeth Bankston. Biosystems Engineering, Auburn University. Jan. 2016 – May 2017. AU Undergraduate Research Fellow.
- Marisa Rodriguez. Chemical Engineering, Auburn University. Jan. 2016 – May 2017. AU Undergraduate Research Fellow.
- Craig Granger. Biosystems Engineering, Auburn University. Jan. 2016 – May 2017. AU Undergraduate Research Fellow.
- Kelsey Jones. Biosystems Engineering, Auburn University. May 2016 -May 2017.
- Olivia Elliott. Biosystems Engineering, Auburn University. Jan. 2014 – May 2015. AU Undergraduate Research Fellow.
- Jesse Blanton. Biosystems Engineering, Auburn University. Jan. 2014 – May 2015. AU Undergraduate Research Fellow.
- Ashley Kinsley. Biosystems Engineering. Auburn University. Spring-Summer 2014.
- H. Rodriguez. Computer Science, SUNY Buffalo. Summer 2013. NSF LSAMP Fellow.
- Aubrey Beckinghausen. Civil Engineering, SUNY Buffalo. Summer 2013. SUNY Undergraduate Research Fellow.
- Peter Byrley. Civil Engineering, SUNY Buffalo. Summer 2013. SUNY Undergraduate Research Fellow.
- Elizabeth Hennessey. Civil Engineering, SUNY Buffalo. Summer 2013. SUNY Undergraduate Research Fellow, NSF REU Fellow.
- Danielle Spinelli. Civil Engineering, SUNY Buffalo. Spring 2013 – Summer 2013.

- Wendy Yung. Biological Engineering, SUNY Binghamton. Summer 2011. NSF REU Fellow.
- Kieran Saio. Forestry Engineering, SUNY ESF. Summer 2010. NSF REU Fellow.

OTHER CONTRIBUTIONS TO TEACHING

- **Participant for NSF-Auburn CASE REU (2021-2024):** Blersch is one of the participants of the CASE REU funded from the National Science Foundation (NSF) to instruct undergraduate students from minority-serving institutions in research training at the undergraduate level. The collaborative project, “Collaborative Approaches Among Scientists and Engineers (CASE)” is led by Dr. Kimberly Mulligan in the College of Sciences and Mathematics, Auburn University.
- **Participant for NSF-Auburn Bioprocessing REU (2022-2025):** Blersch is one of the participants of the Bioprocessing REU, funded from the National Science Foundation (NSF) to instruct undergraduate students in biomaterials and bioprocessing research at the undergraduate level. The collaborative project, “REU Site: Research experience through collaborative teams in bioprocessing for conversion of waste into products of value”, led by Dr. B. Higgins in the Biosystems Engineering Department.
- **Advising Undergraduate Students for BSEN Senior Design.** Blersch has advised senior design groups for their projects since 2014. Projects include the following:
 - 2024 – Wastewater Treatment Wetlands for Poultry Processing (Faculty advisor)
 - 2023 – Floating treatment wetlands for pond remediation (Faculty advisor)
 - 2021 – Aquaponics Facility Site Design (Faculty advisor)
 - 2015 – Garden of Memory design at Auburn University (Faculty advisor)
 - 2014 – Algal turf remediation of stormwater ponds (Faculty advisor)
- **Coordinator of NSF ERIE IGERT:** Blersch served as coordinator of the \$2.5 million grant funded by NSF for five years that instructed graduate students in ecological restoration engineering and design. The grant project, entitled “IGERT: Ecosystem Restoration through Interdisciplinary Exchange (ERIE)”, was led by Dr. Alan Rabideau in the Department of Civil, Structural and Environmental Engineering, SUNY Buffalo.
- **Participant Faculty for NSF-ERIE REU:** Blersch was one of the participant faculty of the ERIE REU, funded from the National Science Foundation (NSF) to instruct undergraduate students in ecosystem restoration science and engineering. The collaborative project, “REU Site: Ecosystem Restoration through Interdisciplinary Exchange (ERIE)”, was led by Dr. Alan Rabideau in the Department of Civil, Structural and Environmental Engineering, SUNY Buffalo.

RESEARCH ACTIVITIES

Peer-Reviewed Journal Manuscripts (= Student Advisee)(46 total, h-index: 19)*

1. Shen, Y., Huang, X., Zeng, H., Wang, C., Blersch, D., Shi, S.*, & Han, L. 2026. Process optimization for the adsorption of inhibitors in corn stover prehydrolysate by cow manure biochar for lactic acid fermentation. *Catalysts*, 16(3), 242. <https://doi.org/10.3390/catal16030242>.
2. Guo, N.*, Wang, S., Whitfield, C.T., Batchelor, W.D., Wang, Y., **Blersch, D.**, Higgins, B.T., Feng, Y., Liles, M.R., de-Bashan, L.E. and Wang, Y., 2025. High-efficiency CRISPR-Cas9 genome editing unveils biofilm insights and enhances antimicrobial activity in *Bacillus velezensis* FZB42. *Biotechnology and Bioengineering*, 122(4): 983-994. DOI: <https://doi.org/10.1002/bit.28933>.
3. Guo, N.*, Wang, S., Whitfield, C. T., Batchelor, W. D., Wang, Y., **Blersch, D.**, Higgins, B.T., Feng, Y., Liles, M.R., de-Bashan, L.E., Luo, W., Guo, L., Wang, Y., & Ma, Y. 2025. Deciphering D-2, 3-butanediol metabolic pathways in a newly isolated *Bacillus velezensis* and rationally engineering *Bacillus subtilis* for efficient production of optically pure D-2, 3-butanediol. *ACS Synthetic Biology*, 14: 4025-36. DOI: <https://doi.org/10.1021/acssynbio.5c00445>.

4. Shen, Y., Luo, L., Chong, K., Yang, Y., **Blersch, D.**, Balasundram, V., Shi, S. & Han, L. 2025. The targeted removal of aromatic inhibitors in dilute acid prehydrolysate of corn stover by KOH-modified biochar for the efficient production of lactic acid. *Journal of Environmental Management*, 395: 127902. DOI: <https://doi.org/10.1016/j.jenvman.2025.127902>.
5. Wang, S.*, Wang, X., Adeniji, O.D., Batchelor, W.D., Wang, Y., **Blersch, D.**, Higgins, B.T., Liles, M.R., Luo, W., Chen, C.Y. & Feng, Y. 2025. Targeted genome editing of the ACC deaminase gene in *Bradyrhizobium*: Toward enhanced plant growth and stress tolerance. *Biotechnology and Bioengineering*, 2025: 1-10. DOI: <https://doi.org/10.1002/bit.70064>.
6. Burgess, N.*, Shi, S., Li, J., & **Blersch, D.** 2025. Lactic acid production from filamentous algae grown using aquaponics wastewater. *Aquacultural Engineering*, 102610. DOI: <https://doi.org/10.1016/j.aquaeng.2025.102610>.
7. Raj, C.*, Chakraborty, D., Watts, D. B., Horvath, T., Ketterings, Q. M., **Blersch, D.**, Tomasek, A.A., Cordoba, B.C., Prasad, R. 2024. Impact of broiler litter and swine liquid manure on nutrient loss in runoff from three consecutive one-acre-inch rainfall events. *Heliyon*, 10(22). DOI: <https://doi.org/10.1016/j.heliyon.2024.e40062>.
8. Jiménez-Bonilla, P.*, Wang, S., Whitfield, T., **Blersch, D.**, Wang, Y., Gonzalez-de-Bashan, L. E., Luo, W., Wang, Y. 2024. Tolerance in solventogenic *Clostridia* for enhanced butanol production: Genetic mechanisms and recent strain engineering advances. *Synthetic Biology and Engineering* 2(2):10007. DOI: <https://doi.org/10.35534/sbe.2024.10007>.
9. Wang, C., Shan, Y., Shen, Y., Fu, W., Li, J., **Blersch, D.**, Wu, W., Shi, S., Han, L. 2024. Detoxification of corn stover prehydrolysate by different biochars and its effect on lactic acid fermentation. *RSC Advances*, 14(7), 4315-4323. DOI: <https://doi.org/10.1039/D3RA08055B>.
10. Kalvakaalva, R.*, Smith, M., Prior, S.A., Runion, G.B., Ayipio, E., Blanchard, C., Wells, D., **Blersch, D.**, Adhikari, S., Prasad, R. and Hanson, T.R., Higgins, B.T. 2023. Life cycle assessment of a decoupled biofloc aquaponics facility across seasons. *Journal of Cleaner Production*, 429, p.139356. DOI: [10.1016/j.jclepro.2023.139356](https://doi.org/10.1016/j.jclepro.2023.139356).
11. Proano-Pena, G.*, Kardel, K., **Blersch, D. M.**, & Carrano, A. L. (2023). The effect of interstitial surface spacing on algal biomass accumulation. *Algal Research*, 70, 102980. DOI: 10.1016/j.algal.2023.102980.
12. Kalvakaalva, R.*, Smith, M., Ayipio, E., Blanchard, C., Prior, S.A., Runion, G.B., Wells, D., **Blersch, D.**, Adhikari, S., Prasad, R., Hanson, T.R., Wall, N., and Higgins, B.T., 2023. Mass-balance process model of a decoupled aquaponics system. *Journal of the ASABE*, 66(4): 955-967. DOI: 10.13031/ja.15468.
13. Jiménez-Bonilla, P., Zhang, J., Wang, Y., **Blersch, D.M.**, de-Bashan, L.E., Guo, L., Li, X., Zhang, D. and Wang, Y., 2022. Polycationic surfaces promote whole-cell immobilization and induce microgranulation of *Clostridium saccharoperbutylacetonicum* N1-4 for enhanced biobutanol production. *ACS Applied Materials & Interfaces*, 14(44), pp.49555-49567. DOI: 10.1021/acsami.2c14888.
14. Karimi, Z.*, **Blersch, D.M.** and Davis, V.A., 2022. Design and analysis of a flow way photobioreactor for substrate assessment in attached cultivation of filamentous green algae. *Algal Research*, 66, p.102801. DOI: 10.1016/j.algal.2022.102801.
15. Johnson, M.*, Burgess, N., Shi, S., Li, J. and **Blersch, D.M.**, 2022. Formulation of fish waste as a low-cost fermentative nutrient for lactic acid production by *Lactobacillus pentosus*. *Waste and Biomass Valorization*, 13(6), pp.2917-2925. DOI: 10.1007/s12649-022-01705-0.

16. Viticoski, R.L.*, Wang, D., Feltman, M.A., Mulabagal, V., Rogers, S.R., **Blersch, D.M.** and Hayworth, J.S., 2022. Spatial distribution and mass transport of Perfluoroalkyl Substances (PFAS) in surface water: A statewide evaluation of PFAS occurrence and fate in Alabama. *Science of The Total Environment*, 836, p.155524. DOI: 10.1016/j.scitotenv.2022.155524.
17. Stoeckel, J.A., Szoka, M.*, Abdelrahman, H.A., Davis, J.D., **Blersch, D.M.**, Helms, B.S. 2021. Crayfish chimneys function as burrow-ventilation structures. *Journal of Crustacean Biology* 41(3): 1-9. DOI: 10.1093/jcbiol/ruab045.
18. Karimi, Z.*, Laughinghouse, H.D., Davis, V.A., **Blersch, D.M.** 2021. Substrate properties as controlling parameters in attached algal cultivation. *Applied Microbiology and Biotechnology* 105: 1823-1835. DOI: 10.1007/s00253-021-11127-y.
19. Shi, S., Guan, W., **Blersch, D.**, Li, J. 2021. Improving the enzymatic digestibility of alkaline-pretreated lignocellulosic biomass using polyDADMAC. *Industrial Crops and Products* 162: 113244. DOI: 10.1016/j.indcrop.2021.113244.
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21. Proano-Pena, G.*, Carrano, A.L., **Blersch, D.M.** 2020. Analysis of very-high surface area 3D-printed media in a moving bed biofilm reactor for wastewater treatment. *PLoS ONE* 15(8): e0238386. DOI: 10.1371/journal.pone.0238386.
22. Jiménez-Bonilla, P.*, Zhang, J., Wang, Y., **Blersch, D.**, de-Bashan, L., Guo, L., Wang, Y. 2020. Enhancing the tolerance of *Clostridium saccharoperbutylacetonicum* to lignocellulosic-biomass-derived inhibitors for efficient biobutanol production by overexpressing efflux pumps genes from *Pseudomonas putida*. *Bioresource Technology*, 312: 123532. DOI: 10.1016/j.biortech.2020.123532.
23. Blanchard, C.*, Wells, D.E., Pickens, J.M., **Blersch, D.M.** 2020. Effect of pH on cucumber growth and nutrient availability in a decoupled aquaponic system with minimal solids removal. *Horticulturae* 6(10). DOI: 10.3390/horticulturae6010010.
24. Blersch, S.S., **Blersch, D.M.**, Atkinson, J.F. 2019. Metabolic variance: A metric to detect shifts in stream ecosystem function as a result of stream restoration. *Journal of the American Water Resources Association* 55(3): 608-621. DOI: 10.1111/1752-1688.12753.
25. Ekong, J.*, **Blersch, D.M.**, Kardel, K., Carrano, A.L. 2019. Influence of three-dimensional features of a woven-fabric substrate on benthic algal biomass production. *Algal Research* 44: no. 101661. DOI: 10.1016/j.algal.2019.101661.
26. Khoshkhoo, A.*, Carrano, A.L., **Blersch, D.M.**, Kardel, K. 2019. Engineering of bio-mimetic substratum topographies for enhanced early colonization of filamentous algae. *PLoS ONE* 14(7): e0219150. DOI: 10.1371/journal.pone.0219150.
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29. Xu, G., Guan, W., Shi, S.*, **Blersch, D.M.** 2018. Adsorption model development for mass transport characteristics of MFEP structure by physiosorption method. *Chemical Engineering Journal* 354: 922-931. DOI: 10.1016/j.cej.2018.08.080.

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31. Kardel, K.*, **Blersch, D.M.**, Carrano, A.L. 2018. Custom design of substratum topography increases biomass yield in algal turf scrubbers. *Environmental Engineering Science* 35(8): 856-863. DOI: 10.1089/ees.2017.0354.
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35. **Blersch, D.M.**, Kangas, P., Adey, W. 2016. Freshwater marsh community structure in a Florida Everglades mesocosm. *Transactions of the ASABE* 59(5): 1305-1312. DOI 10.13031/trans.59.11599.
36. Calahan, D., **Blersch, D.M.**, and Adey, W. 2015. Weeds in the algae garden—A source of biomass for the algae-to-biofuels program. *Ecological Engineering* 85: 275-282.
37. Wallace, J.S.*, **Blersch, D.M.** 2015. Dynamic modeling predicts continued bioaccumulation of polybrominated diphenyl ethers (PBDEs) in smallmouth bass (*Micropterus dolomieu*) post phase-out due to invasive prey and shifts in predation. *Environmental Pollution* 206, 289-297. doi: 10.1016/j.envpol.2015.07.023
38. Kardel, K.*, Carrano, A.L., **Blersch, D.M.**, and Kaur, M. 2015. Preliminary development of 3D printed custom substrata for benthic algal biofilms. *3D and Printing and Additive Manufacturing Journal* 2(1): 12-19. doi: 10.1089/3dp.2014.0024.
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40. Beckinghausen, A.*, Martinez, A.*, **Blersch, D.M.**, Haznedaroglu, B. 2014. Association of nuisance filamentous algae *Cladophora* spp. with *E. coli* and *Salmonella* in public beach waters: impact of UV protection on bacterial survival. *Environmental Science: Processes & Impacts* 16: 1267-1274. doi: 10.1039/c3em00659j.
41. **Blersch, D.M.**, Kangas, P.C., Mulbry, W.W. 2013. Turbulence and nutrient interactions that control benthic algal production in an engineered cultivation raceway. *Algal Research*. 2(2): 107-112. doi: 10.1016/j.algal.2013.01.001.
42. **Blersch, D.M.**, Kangas, P., Mulbry, W. 2013. Autonomous benthic algal cultivator under feedback control of ecosystem metabolism. *Environmental Engineering Science*. 30(2): 53-60. doi: 10.1089/ees.2012.0045.
43. **Blersch, D.M.**, Kangas, P. 2013. A modeling analysis of the sustainability of ecotourism in Belize. *Environment, Development and Sustainability*. 15(1): 67-80. doi: 10.1007/s10668-012-9374-4.

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45. **Blersch, D.M.**, Kangas, P. 2006. Autonomous behavior of a wetland soil technoecosystem. *Environmental Engineering Science*. 23(2):285-295. doi:10.1089/ees.2006.23.285.
46. Schreuders, P.D., **Blersch, D.M.**, Lomander, A., Koh, F., Reddy, P. Danzy, D. 2002. An ecological engineering project for combined undergraduate and graduate classes. *International Journal of Engineering Education* 18(5): 607-615.

Non-Refereed Research Publications (13 total)(* = student advisee)

1. Wingard, S.*, Blersch, D.M. 2026. Investigation of subsurface constructed wetlands for aquaculture wastewater treatment. Auburn University Journal of Undergraduate Scholarship. Auburn University.
2. Streb, C., **Blersch, D.M.** 2025. Regenerative techno-ecosystems in urban landscapes. In: M'Closkey, K., VanDerSys, K., eds. Media Matters in Landscape Architecture. ORO Editions, Novato, California. 224 pp. ISBN: 9781957183671.
3. Proano-Pena, G.*, Carrano, A.L., **Blersch, D.M.** 2020. Dataset for Analysis of very-high surface area 3D-printed media in a moving bed biofilm reactor for wastewater treatment. Faculty Datasets. 3. <https://digitalcommons.georgiasouthern.edu/data/3>. DOI: 10.20429/data.2020.1.
4. Rodriguez, M.*, Herring, D.W.*, Karimi, Z.*, **Blersch, D.M.**, Davis, V.A. 2020. Understanding the growth and attachment of algae on nanocomposites. Auburn University Journal of Undergraduate Scholarship. Auburn University.
5. Khoshkhoo, A.*, **Blersch, D.M.**, Carrano, A.L. 2018. Effect of surface slope and build orientation on surface finish and dimensional accuracy in material jetting processes. *Procedia Manufacturing* 26: 720-730. DOI: 10.1016/j.promfg.2018.07.082.
6. Wells, D.E., **Blersch, D.M.**, Chappell, J., Hanson, T., Huang, T., Smith, M.* 2018. The Auburn University aquaponics initiative: leveraging university resources to enhance teaching and research. *HortScience* 53(9): S480. Abstract.
7. Carrano, A.L., **Blersch, D.M.**, Kardel, K.*, Khoshkhoo, A.* 2016. Understanding attachment preferences of benthic algae through controlled surface topographies on 3D-printed substrata. Paper presented at the 5th International Conference on Surface Metrology, April 4-7, 2016, Poznan University of Technology, Poznan, Poland.
8. Rains, J.D.* and **Blersch, D.M.** 2015. A re-circulating flow-lane photo-incubator for benthic algae experiments. Paper presented at 2015 Annual International Meeting of American Society of Agricultural and Biological Engineers (ASABE), July 26-29, 2016, New Orleans, LA.
9. Bohlen, M., Clark, B., Dalton, J.*, **Blersch, D.M.**, Atkinson, J., Yang, L. 2013. Another day at the beach: Combining sensor data with human perception and intuition for the monitoring and care of public recreational water resources. 9th International Conference on Intelligent Environments: IEEE Computer Society; 2013:37-44. doi: 10.1109/IE.2013.21.
10. **Blersch, D.M.**, Mulbry, W., and Kangas, P. 2005. Emergy of algal systems revisited. In: M.T. Brown (ed.). *Emergy Synthesis 3: Theory and Applications of the Emergy Methodology*. Center for Environmental Policy. University of Florida, Gainesville, Florida, pp. 561-568.
11. **Blersch, D.M.**, Kangas, P. 2005. Project Greenhab at the University of Maryland: Development of a research-scale life support greenhouse. In: R.M. Zubrin and F. Crossman (eds.). *On to Mars 2: Exploring and Settling a New World*. Collector's Guide Publishing, Inc., Wheaton, IL.

12. **Blersch, D.M.**, Biermann, E., Calahan, D., Ives-Halperin, J., Jacobson, M., Kangas, P. 2002. A proposed design for wastewater treatment and recycling at the Flashline Mars Arctic Research Station utilizing living machine technology. In: R.M. Zubrin and F. Crossman (eds.). *On to Mars: Colonizing a New World*. Apogee Books, Wheaton, IL.
13. **Blersch, D.M.**, Biermann, E., Kangas, P. 2002. Preliminary design considerations for the MARS wastewater treatment system: Physico-chemical or living machine? In: R.M. Zubrin and F. Crossman (eds.). *On to Mars: Colonizing a New World*. Apogee Books, Wheaton, IL.
14. **Blersch, D.M.**, Biermann, E., Kangas, P. 2000. Preliminary design considerations on biological treatment alternatives for a simulated Mars base wastewater treatment system. *Proceedings of the 35th Annual International Conference on Environmental Systems in Toulouse, France, July 2000*. Society of Automotive Engineers, Mechanicsville, PA.

Major Research Reports

1. **Blersch, D.M.** 2013. Development of algae cultivation for nutrient recovery from the nearshore Great Lakes in Buffalo, New York: Final Report. Prepared for New York State Pollution Prevention Institute, Rochester Institute of Technology, Rochester, NY, 41 pp.
2. Habberfield, M.W., **Blersch, D.M.**, and Rabideau, A.J. 2011. Machias gravel pit site: phytoremediation barrier design. Prepared for KPRG and Associates, Inc., Brookfield, WI, on behalf of Motorola, Inc., 34 pp.
3. Nordvik, A.B., Simmons, J.L., Burkes, J., Buist, I., **Blersch, D.M.**, and Reed, M. 1995. *Mesoscale in Situ Burn Aeration Tests*. Marine Spill Response Corporation, Washington, DC. Report Series 95-017, 116 pp.

Abstracts and Presentations at Conferences (* = student advisee, underline = presenter)

1. **Blersch, D.M.** 2026. Is there a there there? AI-Assisted Design of Closed Aquatic Microcosms for Ecological Engineering Education. Oral presentation at the Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 12-15, Indianapolis, IN.
2. **Blersch, D.M.** 2026. AI-Enabled microcosm design as a teaching tool in ecological engineering. Oral presentation at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.
3. **Blersch, D.M.**, Singer, M. 2026. Advancing the AEES Certified Ecological Designer Program: Updates, new initiatives, and a vision for the future. Oral presentation at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.
4. **Blersch, D.M.** 2026. Origins: Living Machines and the New Alchemy Institute – John Todd and the early innovations of ecological design. Panel presentation (invited) at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.
5. **Blersch, D.M.** 2026. Applications of Systems Ecology to Site Design: Some Principles of systems modeling. Certified Ecological Designer Workshop Training. Presentation at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.
6. Proano-Pena, G.*, **Blersch, D.M.** 2026. Preliminary evaluation of a pilot-scale algal system for wastewater treatment. Poster presentation at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.
7. Kakama, N.*, Proano-Pena, G., **Blersch, D.M.** 2026. Treatment performance of tidal-flow constructed wetlands for poultry processing wastewater. Poster presentation at the American Ecological Engineering Society 26th Annual Meeting, 2-4 June, Burlington, Vermont, USA.

8. Kakama, N.*, Proano-Pena, G.*, **Blersch, D.M.** 2026. Enhancing nutrient removal from poultry wastewater in a tidal flow constructed wetland. Poster presentation at the Alabama-Mississippi Joint Annual Water Conference, 12-15 April, Mobile, Alabama, USA.
9. Kakama, N.*, Proano-Pena, G.*, **Blersch, D.M.** 2026. Design and performance of tidal flow constructed wetlands for nutrient removal from poultry wastewater. Poster presentation at the Auburn University Graduate Engineering Research Showcase, 2 April, Auburn, Alabama, USA.
10. Wingard, S.*, **Blersch, D.** 2026. Investigation of Subsurface Constructed Wetlands for Aquaculture Wastewater Treatment. Poster presentation at the Auburn Research Symposium, 26 March, Auburn, Alabama, USA.
11. Freeman, C.*, Flannelly, L.*, Kakama, N.*, Safeerul, H.*, Blersch, D.M. 2026. Generative AI in preparing a physical ecological microcosm. Poster presentation at the 2026 Gulf Scholars Conference, 26-27 March, Gainesville, Florida, USA.
12. Mousavi, S.*, **Blersch, D.M.** 2026. Nutrient removal performance of *Rhizoclonium* sp. cultivated in synthetic and hydroponic wastewater. Poster presentation at the GRACE Annual Symposium, 26-27 March, Auburn University, Auburn, Alabama, USA
13. Mousavi, S.*, **Blersch, D.M.** 2025. Benthic filamentous algae: A low-energy approach to sustainable nutrient recovery in greenhouse wastewater treatment. Poster presentation at the Auburn College of Agriculture Graduate Poster Showcase, 23 October, Auburn, AL.
14. **Blersch, D.M.** 2025. Filamentous algae production in wastewater streams enhanced through the design of growth substrata. Oral presentation (Invited) at the Algae Biomass Summit 2025, 19-22 October, Arizona State University, Tempe, AZ.
15. **Blersch, D.M.**, Roy, E. 2025. The American Ecological Engineering Society: The First 25 Years and a Prosperous Way Forward. Oral presentation (Invited) at the Closed Cycles and the Circular Society 2025: The Power of Ecological Engineering. Meeting of the International Ecological Engineering Society, 16-19 July, Reykjavik University, Reykjavik, Iceland.
16. **Blersch, D.M.** 2025. Reframing controlled environment agriculture within the circular bioeconomy: An ecological engineering perspective. Oral presentation at the Closed Cycles and the Circular Society 2025: The Power of Ecological Engineering. Meeting of the International Ecological Engineering Society, 16-19 July, Reykjavik University, Reykjavik, Iceland.
17. Dale, G., **Blersch, D.M.**, Þorsteinsdóttir, H., Stefanakis, A., Coombes, A. 2025. Engineering nature's future: The call for practical action in ecological engineering. Panel presentation at the Closed Cycles and the Circular Society 2025: The Power of Ecological Engineering. Meeting of the International Ecological Engineering Society, 16-19 July, Reykjavik University, Reykjavik, Iceland.
18. Proano-Pena, G.*, **Blersch, D.M.** 2025. Integrating algal turf scrubber technology to optimize aquaculture sustainability. Poster presentation at the Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 13-16, Toronto, ON.
19. **Blersch, D.M.**, Proano, G.* 2025. Performance enhancement of filamentous algae production in wastewater streams via novel growth substrata. Oral presentation at the International Conference on Algal Biomass, Biofuels and Bioproducts. 16-18 June, Tempe, AZ.
20. Proano, G.*, **Blersch, D.M.**, Davis, R. 2025. Exploring the cultivation of *Rhizoclonium* sp. for potential biofuel production. Poster presentation at the International Conference on Algal Biomass, Biofuels and Bioproducts. 16-18 June, Tempe, AZ.
21. **Blersch, D.M.** 2025. Continuing the critical focus on controlled environment agriculture as an ecologically engineered system. Oral presentation at the American Ecological Engineering Society Annual Meeting. 28-31 May, Athens, GA.

22. Proano-Pena, G.*, **Blersch, D.M.**, Davis, R. 2025. Sustainable wastewater treatment through algal systems. Poster presentation at the American Ecological Engineering Society Annual Meeting, 28-31 May, Athens, GA.
23. Kabata-Kakama, N.*, **Blersch, D.M.** 2025. Proposed design of a wastewater treatment plant for poultry processing wastewater using tidal flow constructed wetlands. Poster presentation at the American Ecological Engineering Society Annual Meeting, 28-31 May, Athens, GA.
24. Mousavi, S.*, **Blersch, D.M.** 2025. Filamentous algae as a natural biofilter: Enhancing nutrient recovery in controlled environment agriculture. Poster presentation at the American Ecological Engineering Society Annual Meeting, 28-31 May, Athens, GA.
25. Kabata-Kakama, N.*, **Blersch, D.** 2025. Tidal flow constructed wetlands for the remediation of poultry wastewater: A review. Poster presentation at the 2025 Alabama - Mississippi Water Joint Annual Conference, April 6-9, Mobile, Alabama, USA.
26. Mousavi, S.*, **Blersch, D.** 2025. Benthic filamentous algae: A low-energy approach to sustainable nutrient recovery in greenhouse wastewater treatment. Poster presentation at the GRACE Annual Symposium, March 27-28, Gainesville, Florida, USA.
27. Proano Pena, G.*, **Blersch, D.** 2025. Algal systems in aquaculture: A review of experimental designs in wastewater treatment using filamentous algae. Poster presentation at the Auburn University Research Symposium, March 26, Auburn, Alabama, USA.
28. Proano Pena, G.*, **Blersch, D.**, Mousavi, S. 2025. Algal systems in aquaculture: A review of wastewater treatment and potential applications. Poster presentation at the Aquaculture 2025, World Aquaculture Society, March 6-10, New Orleans, Louisiana, USA.
29. Proano Pena, G.*, **Blersch, D.** 2024. The effect of interstitial surface spacing on algal biomass accumulation in floway systems. Oral presentation (online) at the Cyanobacteria and Algae Research and Education (CARE) Workshop, September 20, Alabama State University, Montgomery, AL.
30. Itokazu, A.G.*, **Blersch, D.** 2024. Algal turf scrubber community: A growth model. Oral presentation (online) at the Cyanobacteria and Algae Research and Education (CARE) Workshop, September 20, Alabama State University, Montgomery, AL.
31. **Blersch, D.** 2024. A review of the algal turf scrubber as an ecotechnology for aquatic nutrient recovery and remediation. Oral presentation (online) at the Cyanobacteria and Algae Research and Education (CARE) Workshop, September 20, Alabama State University, Montgomery, AL.
32. Mousavi, S.*, Aminiershad, G., Blersch, D. 2024. Filamentous algae cultivation in controlled environment agriculture for efficient wastewater treatment – A mini-review. Poster presentation at the Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 28-31, Anaheim, CA.
33. **Blersch, D.** 2024. Deus ex Machina? Reflecting on the role of systems thinking in ecological engineering education. Oral presentation at the Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 28-31, Anaheim, CA.
34. Perry, A.*, Mousavi, S.*, **Blersch, D.** 2024. Development of inoculation method for filamentous algae using alginate. Poster presentation at the NSF Bioprocessing REU Research Symposium, July 18, Auburn University, Auburn AL.
35. **Blersch, D.** 2024. Teaching Ecological Engineering: Concepts of a Course in Practice. Oral presentation at the American Society for Engineering Education Annual Meeting, June 23-26, Portland, OR.

36. **Blersch, D.** 2024. Panel Presentation: Ecological Engineering Courses – Introduction to Ecological Engineering at Auburn University. Oral presentation at the American Ecological Engineering Society Annual Meeting. May 29-31, Blacksburg, VA.
37. Aryal, N., **Blersch, D.**, Osborn, S. 2024. Hands-on Ecological Engineering Course with a Semester Long Project and Laboratory Exercises. Oral presentation at the American Ecological Engineering Society Annual Meeting. May 29-31, Blacksburg, VA.
38. Graham, J.*, Rodriguez McGehee, M.*, de-Bashan, L., **Blersch, D.M.** 2023. Behavior study of microbial consortia alginate beads, Poster presentation at the NSF Bioprocess REU, July 21, Auburn University, Auburn, AL.
39. **Blersch, D.M.**, Itokazu, A.G.* 2023. A critical review of the algal turf scrubber for applications in wastewater and agricultural applications. Oral presentation at the Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 9-12, Omaha, Nebraska.
40. Rodriguez-McGehee, M.G.*, de-Bashan, L., **Blersch, D.M.** 2023. Development of a novel bead reactor for aquaculture wastewater treatment. Annual International Meeting of the American Society of Agricultural and Biological Engineers (ASABE), July 9-12, Omaha, Nebraska.
41. **Blersch, D.M.** 2023. Critical focus on controlled environment agriculture as an ecologically engineered system. Oral presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
42. **Blersch, D.M.** 2023. Review of the Certified Ecological Designer program for AEES. Oral presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
43. Itokazu, A.G.*, **Blersch, D.M.** 2023. The Crawfish Project: Enhancing Engineering Education through Project-Based Training. Oral presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
44. Itokazu, A.G.*, **Blersch, D.M.** 2023. Algal Turf Scrubber Community Growth: A Model. Oral presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
45. Aryal, N., **Blersch, D.M.**, Osborn, S., Arjun, T. 2023. Developing an Undergraduate Level Hands-on Ecological Engineering Course. Poster presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
46. Rodriguez-McGehee, M.G.*, de-Bashan, L., **Blersch, D.M.** 2023. Development of a Novel Bead Reactor for Aquaculture Wastewater Treatment. Poster presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
47. Ko, H.*, **Blersch, D.M.**, Bradford, B. 2023. Design and Testing of Lab-Bench Scale Algal Turf Scrubbers for Investigating Bacteria-Algae Interaction During Attachment. Poster presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
48. Shaffer, M.*, **Blersch, D.M.** 2023. Trial Approach for Bench Scale Experimental Filamentous Algae Growth. Poster presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
49. Sanders, C.*, **Blersch, D.M.** 2023. Proposal of Exploration of Novel Cultivation Scenarios for the Alga, *Asparagopsis taxiformis* for climate mitigating biochemicals. Poster presentation at the American Ecological Engineering Society Annual Meeting. 5-10 June, Tampa, FL.
50. Rodriguez-McGehee, M.G.*, de-Bashan, L.E., **Blersch, D.M.** 2022. Proposing treatment of aquaponics and aquaculture wastewater by novel bead reactor. Poster presentation at the Auburn University 2022 College of Agriculture Graduate Research Poster Showcase. 20 October, Auburn, AL.

51. Ko, H.*, Bradford, B., **Blersch, D.M.** 2022. Proposed investigation of the role of bacteria in colonization of filamentous algae in aquaponics wastewater algal turf scrubbers. Poster presentation at the Auburn University 2022 Engineering Graduate Student Showcase. 20 October, Auburn, AL.
52. Scott, A.*, **Blersch, D.M.** 2022. Analysis of aquaponics systems for addressing food insecurity. Poster presentation at the Auburn University 2022 Aquaponics Symposium. 28 September, Auburn, AL.
53. Ko, H.*, Bradford, B., **Blersch, D.M.** 2022. Proposed investigation of the role of bacteria in colonization of filamentous algae in aquaponics wastewater algal turf scrubbers. Poster presentation at the Auburn University 2022 Aquaponics Symposium. 28 September, Auburn, AL.
54. Rodriguez-McGehee, M.G.*, de-Bashan, L.E., **Blersch, D.M.** 2022. Proposing treatment of aquaponics and aquaculture wastewater by novel bead reactor. Poster presentation at the Auburn University 2022 Aquaponics Symposium. 28 September, Auburn, AL.
55. **Blersch, D.M.** 2022. Resource recovery in incidental material streams in aquaponics systems. Oral presentation at the Auburn University 2022 Aquaponics Symposium. 28 September, Auburn, AL.
56. **Blersch, D.M.**, Ayipiyo, E.*, Blanchard, C.*, Davis, A., Hanson, T., Higgins, B., Itokazu, G.*, Rezaei, S.*, Salazar-Gutierrez, M.R., Wells, D. 2022. Collaborative research on designed ecosystems for food production. Oral presentation at the NE-1835 NIFA Multistate Annual Meeting. 31 July, Chicago, IL.
57. Siebert, P.*, Itokazu, A.G.*, **Blersch, D.M.** 2022. Assessment of filamentous algal productivity in a Periphyton Nutrient Removal System. Poster presentation at the NSF Bioprocess REU Symposium. 15 July, Auburn University, Auburn, AL.
58. **Blersch, D.M.**, Calahan, S. 2022. Wherefore art thou, Floway? A critical review of the algal turf scrubber. Oral presentation at the American Ecological Engineering Society Annual Meeting. 21-23 June, Baltimore, MD.
59. Kalvakaalva, R.*, Higgins, B.T., **Blersch, D.M.**, Wells, D.E., Hanson, T., Smith, M. 2021. Life cycle assessment of a pilot-scale aquaponics facility for fish waste conversion into food. International Meeting of American Society of Agricultural and Biological Engineers. July 12-15, Virtual Forum.
60. Ayipio, E.*, Wells, D.E., Higgins, B., **Blersch, D.M.**, McQuilling, A., Fain, G. 2021. Fertigation management for soilless cucumber production using aquaculture effluent with and without supplementation. Aquaculture America, International Conference & Exposition, August 11-14, San Antonio, TX.
61. Karimi, Z.*, Davis, V.A., **Blersch, D.M.** 2021. Investigating the effect of thermodynamic surface characteristics on attached growth of filamentous algae *Stigeoclonium*. Oral presentation at the 2021 American Chemical Society National Meeting, August 22-26, Atlanta, GA.
62. Viticoski, R.*, Wang, D.*, Feltman, M.*, Mulabagal, V., **Blersch, D.**, Hayworth, J. 2021. A State-Wide Survey of the Spatial Distribution of Perfluoroalkyl Substances (PFAS) in Alabama. Oral presentation at the 2021 Alabama Water Resources Conference and Symposium, September 8-10, Perdido Beach, AL.
63. Karimi, Z.*, Davis, V.A., **Blersch, D.M.** 2021. Investigating the effect of thermodynamic surface characteristics on attached growth of filamentous algae *Stigeoclonium*. Oral presentation at the 2021 American Chemical Society National Meeting, August 22-26, Atlanta, GA.
64. Viticoski, R.*, Wang, D.*, Feltman, M.*, Mulabagal, V., **Blersch, D.**, Hayworth, J. 2021. Spatial distribution of perfluoroalkyl substances (PFAS) in the state of Alabama. Oral presentation at the 2021 World Environmental & Water Resources Congress, June 7-11, 2021 (Virtual).

65. Rud, W.*, **Blersch, D.**, Itokazu Canzian da Silva, A.G.* 2021. Identifying laboratory light conditions that are viable for use in an algae turf scrubber raceway with filamentous algae. Poster presentation at the Auburn Research: Student Symposium 2021. March 29 - April 2, 2021, Auburn, AL.
66. Karimi, Z.*, **Blersch, D.**, Davis, V.A. 2020. Understanding the Effect of Surface Characteristics on Attached Growth of Turf-Forming Filamentous Algae. Presentation at the International Congress on Sustainability Science and Engineering, August 3-5, 2020 (Virtual).
67. Liu, M.*, Itokazu, A.*, **Blersch, D.M.** 2020. Effects of Toxicity and structural alterations caused by Perfluorinated sulfate (PFSAs) on the Microalgae *Scenedesmus obliquus* UTEX 393. Poster Presentation at the American Ecological Engineering Society Annual Conference, May 2020. (Virtual).
68. Blanchard, C.*, Wells, D.E., Pickens, J.M., **Blersch, D.M.** 2020. Effect of pH on cucumber growth and nutrient availability in de-coupled aquaponic system with minimal solids removal. Oral presentation at the 2020 Aquaculture America National Conference. Feb 9. – 12, Honolulu, HI.
69. Smith, M.*, Hanson, T., Higgins, B., Wells, D.E., **Blersch, D.M.** 2020. Life cycle assessment of decoupled semi-commercial aquaponic system, initial findings. Oral presentation at the 2020 Aquaculture America National Conference. Feb 9. – 12, Honolulu, HI.
70. Jimenez-Bonilla, P.*, Gonzalez-de-Bashan, L., **Blersch, D.**, Wang, Y., Wang, Y. 2019. Autolysin Gene Deletion on *Clostridium Saccharoperbutylacetonicum* N1-4 Increase Strain Stability and Production for Biobutanol Fermentation. Oral presentation at the 2019 AIChE Annual Meeting, Nov 10-15, Orlando, FL.
71. Hayworth, J., **Blersch, D.**, Mulabagal, V., Stoeckel, J., Panizzi, J., Biancardi, V., Akingbemi, B., Schwartz, D. 2019. PAIR Team Research Update, Emerging Contaminants. Oral presentation at the Auburn Research Faculty Symposium, Oct 4, Auburn, AL.
72. Burgess, N.*, Shi, S., **Blersch, D.M.** 2019. Nutrient recovery from aquaponics wastewater using algal turf scrubber and the utilization of filamentous algae for lactic acid fermentation. Poster presentation at the 31st Annual Alabama Water Resources Conference. Sept 4-6, Orange Beach, AL.
73. Higgins, B.T., **Blersch, D.M.**, Wells, D.E., Hanson, T.R. 2019. Life cycle assessment of aquaponics systems. Oral presentation at the Annual International Meeting of American Society of Agricultural and Biological Engineers. July 7 – 10, Boston, MA.
74. Proano-Pena, G.*, **Blersch, D.M.**, Carrano, A., Kardel, K.* 2019. Improving nitrification biofilter performance with 3D printed media. Oral presentation at the ASABE Annual International Meeting. July 7-10, Boston, MA.
75. **Blersch, D.M.**, Carrano, A., Khoshkhoo, A.*, Kardel, K.*, Ekong, J.*, Proano-Pena, G.* 2019. Performance enhancement of algal turf scrubbers with substrate surface engineering. Oral presentation at the OMW to Algae Symposium, Center for Biotechnology. July 7-10, Sfax, Tunisia.
76. **Blersch, D.M.**, Ekong, J.*, Carrano, A., Kardel, K.* 2019. Improving Algal Turf Scrubber Performance in Recovery of Aquaculture Wastewater Nutrients with Design of 3D Growth Substrata. Oral presentation at the IWAAlgae2019: IWA Conference on Algal Technologies and Stabilization Ponds for Wastewater Treatment and Resource Recovery. July 1-2, Valladolid, Spain.
77. Karimi, Z.*, Rodriguez, M., **Blersch, D.M.**, Davis, V.A. 2019. Investigating the effect of surface energy on algal attachment and growth. Poster presentation at the 2019 Phycological Society of America Annual Meeting. June 23-27, Fort Lauderdale, FL.
78. Ekong, J.*, **Blersch, D.M.**, Carrano, A., Kardel, K. 2019. Three-dimensional substratum features increase biomass productivity in algal turf scrubber cultivation. Oral presentation at the 9th International Conference on Algal Biomass, Biofuels and Bioproducts. June 17-19, Boulder, CO.

79. Karimi, Z.*, Rodriguez, M. *, **Blersch, D.M.**, Davis, V. 2019. Investigating the effect of surface energy of the substrate on algal attachment. Poster presentation at the 93rd American Chemical Society Colloid & Surface Science Symposium. June 16-19, Atlanta, Georgia.
80. Viticoski, R. *, **Blersch, D.M.**, Kang, Z., Itokazu, A. *, Mulabagal, V., Hayworth, J. 2019. Uptake and adsorption of perfluoroalkyl substances by a mixed periphytic algal community from an algal turf scrubber system. Poster presentation at the 19th Annual Meeting of the American Ecological Engineering Society, June 3-6, Asheville, NC.
81. Liu, M.*, Itokazu, A. *, **Blersch, D.M.** 2019. Effects of Toxicity and structural alterations caused by Perfluorinated Alkyl Acids (PFAAs) on the microalgae *Scenedesmus obliquus* UTEX 393. Poster presentation at the 19th Annual Meeting of the American Ecological Engineering Society, June 3-6, Asheville, NC.
82. **Blersch, D.M.**, Khoshkhoo, K. *, Carrano, A., Kardel, K. *, Ekong, J. *, Proano, G. *, Karimi, Z. *, Davis, V. 2019. Performance of 3D Manufactured substrata in the algal turf scrubber approach. Oral presentation at the 19th Annual Meeting of the American Ecological Engineering Society, June 3-6, Asheville, NC.
83. Viticoski, R.*, **Blersch, D.M.**, Mulabagal, V., Hayworth, J. 2019. Remediation of perfluoroalkyl substances (PFAS) by a mixed periphytic algal community. Poster presentation at the EWRI World Environmental and Water Resources Congress, May 19-23, Pittsburgh, PA.
84. Viticoski, R.*, **Blersch, D.M.**, Mulabagal, V., Hayworth, J. 2019. Evaluation of an algal turf scrubber approach for the remediation of perfluoroalkyl substances (PFAS). Oral presentation at the American Society of Agricultural and Biological Engineers Alabama Section Spring Symposium, April 12, Auburn, Alabama.
85. Liu, M.*, **Blersch, D.M.** 2019. Effects of toxicity and structural alterations caused by Perfluorinated Alkyl Acids (PFAAs) on the microalgae *Scenedesmus obliquus* UTEX 393. Poster presentation at the Auburn Research: Student Symposium 2019. April 9, Auburn, AL.
86. Howell, R.*, **Blersch, D.M.** 2019. Development of a small-scale flume reactor for benthic filamentous algae colonization studies. Poster presentation at the Auburn Research: Student Symposium 2019. April 9, Auburn, AL.
87. Land, H.*, **Blersch, D.M.** 2019. Protein yield from filamentous algae culture from aquaculture wastewater as a function of nutrient condition. Poster presentation at the Auburn Research: Student Symposium 2019. April 9, Auburn, AL.
88. Karimi, Z.*, Rodriguez, M., **Blersch, D.M.**, Davis, V.A. 2019. Investigating the effect of surface energy of the substrate on attached algal growth. Oral presentation at the Auburn Research: Student Symposium 2019. April 9, Auburn, AL.
89. Viticoski, R.*, **Blersch, D.M.**, Mulabagal, V., Hayworth, J. 2019. A bioremediation approach for perfluoroalkyl substances (PFAS). Oral presentation at the Auburn Research: Student Symposium 2019. April 9, Auburn, AL.
90. Blersch, S.S., **Blersch, D.M.**, Atkinson, J. 2018. Stream periphyton metabolism correlates with hydraulic signature. Poster presentation, American Geophysical Union Fall Meeting 2018, 10-14 December, Washington D.C.
91. Itokazu, A.G.*, **Blersch, D.M.**, Rorig, L.R. 2018. Applications of algal turf scrubber for water remediation in Brazil. Poster presentation, College of Agriculture Graduate Student Poster Showcase, 25 October, Auburn University.
92. Viticoski, R.*, **Blersch, D.M.**, Mulagabal, V., Ayers, M. *, Hayworth, J. 2018. Culture parameters of a mixed periphytic algal community to be used in the remediation of perfluoroalkyl substances (PFAS).

- Poster presentation, Fall 2018 Graduate Engineering Research Showcase, 24 October, Auburn University.
93. Itokazu, A.G.*, **Blersch, D.M.**, Rorig, L.R. 2018. Applications of algal turf scrubber for water remediation in Brazil. Poster presentation, Fall 2018 Graduate Engineering Research Showcase, 24 October, Auburn University.
 94. Itokazu, A.G.*, **Blersch, D.M.**, Rorig, L.R. 2018. Applications of algal turf scrubber for water remediation in Brazil. Poster presentation, Alabama Water Resources Conference, 5-7 September, Orange Beach, AL.
 95. **Blersch, D.M.** 2018. Performance studies on Algal Turf Scrubber technologies. Oral presentation (invited), BioSC International Workshop “N/P/C storage pools in algae and cyanobacteria and nutrient uptake from waste streams.” 6-7 September, Bioeconomy Science Center, Forschungszentrum Juelich, Germany.
 96. **Blersch, D.M.**, Shi, S. 2018. Lactic acid production from aquaculture fish manure. Oral presentation, 2018 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 29 – August 1. Detroit, MI.
 97. Blersch, D.M. 2018. Linked problems in watershed and lake management. Presented at the 2018 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 29 – August 1. Detroit, MI.
 98. Blersch, D.M. 2018. Microcosm Redux: Developments on the balanced crayfish closed ecosystem project. Presented at the 2018 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 29 – August 1. Detroit, MI.
 99. Johnson, M.*, Shi, S., Burgess, N.*, **Blersch, D.M.** 2018. Formulation of fish waste as nutrient for lactic acid fermentation with supplement of yeast extract. Poster presentation, Interdisciplinary STEM REU Symposium at Auburn University. July 20. Auburn, AL. (poster)
 100. Stoeckel, J., Abdelrahman, H., Helms, B., **Blersch, D.M.**, Davis, J., Szoka, M.* 2018. Crayfish chimney function and purpose: Airflow, oxygen, and pheromones. Oral presentation, IAA 22: the 22nd International Symposium on Freshwater Crayfish. July 9-13. Pittsburgh, PA.
 101. Proano Pena, G.*, Carrano, A.L., Blersch, D.M. 2018. Design and manufacture of 3D-printed substratum for wastewater treatment processes. Oral presentation (invited), 2018 Universities Council on Water Resources & National Institutes of Water Resources Annual Water Resources Conference. June 26-28. Pittsburgh, PA.
 102. Kardel, K.*, Carrano, A., **Blersch, D.M.** 2018. Understanding material distortion in flat specimens in material jetting processes. Presented at Institute of Industrial and Systems Engineers Annual Conference. May 19-22. Orlando, FL.
 103. Karimi, Z.*, Passatino, J.M.*, Herring, D.W.*, Rodriguez, M.G.*, **Blersch, D.M.**, Davis, V.A. 2018. Development of selective algal cultivation substrates by tuning the surface energy. Oral presentation, This is Research Student Symposium. April 3. Auburn University, Auburn, AL.
 104. Rodriguez, M.G.*, Karimi, Z.*, Herring, D.W.*, **Blersch, D.M.**, Davis, V.A. 2018. Understanding and controlling the growth of algae species on nanocomposites. Poster presented at the This is Research Student Symposium. April 3. Auburn University, Auburn, AL.
 105. Herring, D.W.*, Passatino, J.M.*, Karimi, Z.*, Rodriguez, M.*, **Blersch, D.M.**, Davis, V.A. 2018. Investigating algae-substrate interactions using polylactic acid and cellulose nanocrystal composites. Presented at the This is Research Student Symposium. April 3. Auburn University, Auburn, AL. (poster)

106. McQuilling, A., **Blersch, D.M.**, Wells, D. 2018. Modeling nitrogen use efficiency in multitrophic aquaculture production. Presented at American Chemical Society National Meeting & Expo. Mar 18-22. New Orleans, LA.
107. Karimi, Z.*, Passatino, J.M.*, Herring, D.W.*, Proano Pena, G.*, **Blersch, D.M.**, Davis, V.A. 2018. Thermodynamics of algal growth substrates made from renewable macromolecules. Presented at American Chemical Society National Meeting & Expo. Mar 18-22, New Orleans, LA.
108. Shi, S., Blersch, D.M. 2018. Lactic acid production from aquaculture fish manure. World Aquaculture Association, Aquaculture America Annual Conference. 19-22 Feb, Las Vegas, NV.
109. Smith, M.R., Wells, D., Hanson, T., Chappell, J., **Blersch, D.** 2018. Waer and nutrient management and savings in closed-loop aquaponic tilapia/vegetable production. World Aquaculture Association, Aquaculture America, Annual Conference. 19-22 Feb, Las Vegas, NV.
110. Hanson, T. R., **Blersch, D.**, Chappell, J., Wells, D., Huang, T., Smith, M. 2018. Improving aquaculture's value through enhanced nutrient management. World Aquaculture Association, Aquaculture America, Annual Conference. 19-22 Feb, Las Vegas, NV.
111. **Blersch, D.M.**, Wells, D., Hanson, T., Chappell, J. 2018. Systems modeling of nitrogen recycling in multi-trophic aquaculture production. Presented at the 2018 AFRI/NIWQP/WSC Annual Project Directors Meeting. January 29-31. Washington, DC. (poster).
112. **Blersch, D.** 2018. Rethinking the algal bloom: Ecological Engineering of large-scale algal cultivation for water quality restoration. Biomedical Seminar Series, Auburn College of Veterinary Medicine, 28 Sept 2018.
113. Rubisch, M.C.*, **Blersch, D.M.** 2017. Tidal flow wetlands with feedback control for management of nitrogen in aquaculture wastewater. Poster presentation at the 2017 College of Agriculture Graduate Poster Showcase. October 26, Auburn University, Auburn, Alabama.
114. Orangi, J., **Blersch, D.**, Davis, E., Chen, P., Beidaghi, M. 2017. Development and optimization of capacitive deionization for treatment of high-strength agricultural waters. Poster presentation at the 232 Electrochemical Society Meeting. October 1-5, National Harbor, Baltimore, Maryland.
115. **Blersch, D.M.**, Beidaghi, M., Davis, E. 2017. Clay coating systems for removal of heavy metals for waste water. Poster presentation at the 232 Electrochemical Society Meeting. October 1-5, National Harbor, Baltimore, Maryland.
116. **Blersch, D.M.**, Carrano, A., Kaur, M.*, Kardel, K.*, Khoshkhoo, A.*, Parano Pena, G.*, Ekong, J.* 2017. Studies in surface engineering for controlling community structure in benthic algae cultivation. Poster presentation at the This is Research Faculty Symposium. September 22, Auburn University, Auburn, Alabama.
117. Schott, M.H.*, Harris, G., **Blersch, D.M.**, Wells, D., Carrano, A. 2017. Application of high-temperature thermoplastic to 3D printed hydroponics growth systems, improving sustainable food production capabilities to human spaceflight and manned Mars missions. Poster presentation at the IMAPS Advanced Technology Workshop, NASA. September 13-14, Jackson Center, Huntsville, Alabama.
118. Rubisch, M.C.*, **Blersch, D.M.** 2017. Tidal flow wetlands with feedback control for management of nitrogen in aquaculture wastewater. Poster presentation at the 2017 Alabama Water Resources Conference & Symposium. September 6-8, Orange Beach, Alabama.
119. Khoshkhoo, A.*, Carrano, A., **Blersch, D.M.**, Ghaednia, H., Kardel, K.* 2017. Understanding and engineering of natural surfaces with additive manufacturing. Oral presentation at the 2017 Annual International Solid Freeform Symposium. August 7-9, Austin, Texas.

120. Rubisch, M.C.*, **Blersch, D.M.** 2017. Effect of guar on treatment and removal of catfish waste. Poster presentation at the American Ecological Engineering Society Annual Conference, May 23-25, Athens, Georgia.
121. **Blersch, D.M.**, Litton, J.*, Chappell, J., Hanson, T., Smith, M., Wells, D. 2017. Building a research-scale aquaponics system—Recovering nutrients for food production. Oral presentation at the American Ecological Engineering Society Annual Conference, May 23-25, Athens, Georgia.
122. Proano Pena, G.*, Ekong, J.*, Carano, A., **Blersch, D.M.** 2017. Design and Manufacture of Complex 3D-Printed Media for wastewater biofiltration. Poster presentation at the 2017 EPA P3 National Sustainable Design Expo. May 15-16, Gaylord National Resort & Convention Center.
123. Litton, J.* **Blersch, D.M.** 2017. Benthic Algae Cultivation for the Recovery of Nutrients and Wastewater Treatment from Aquaculture Effluent. Poster presentation at the This is Research Student Symposium, April 13, 2017. Auburn University, Auburn, Alabama.
124. Rubisch, M.C.*, **Blersch, D.M.** 2017. Effect of guar on removal and treatment of catfish waste. Poster presentation at the This is Research Student Symposium, April 13, 2017. Auburn University, Auburn, Alabama.
125. Bankston, E.*, **Blersch, D.M.** 2017. Following the mass flow of Nitrogen throughout an aquaponics system. Poster presentation at the This is Research Student Symposium, April 13, 2017. Auburn University, Auburn, Alabama.
126. **Blersch, D.M.**, Litton, J.*, Chappell, J., Hanson, T., Smith, M., Wells, D. 2016. Benthic algae cultivation for recovery of nutrients from aquaponics wastewater. Oral presentation at the 2016 Yangling International Agri-Science Forum. November 5-7, 2016. Northwest A&F University, Yangling, China.
127. **Blersch, D.M.**, Kardel, K.*, Kuar, M.*, Carrano, A. 2016. All the world's a stage: Engineering topography with 3D Printing for Designer Periphytic Biofilms. Poster presentation at the This is Research Faculty Symposium. September 16, 2016. Auburn University, Auburn, Alabama.
128. Hanson, T., **Blersch, D.M.**, Chappel, J., Wells, D., Huang, T., Smith, M. 2016. Improving Aquaculture's Value through Enhanced Nutrient Management. Poster presentation at the This is Research Faculty Symposium. September 16, 2016. Auburn University, Auburn, Alabama.
129. Rains, J.*, **Blersch, D.M.** 2016. Removal of pathogenic bacteria in algal turf scrubbers. Oral presentation at the 2016 Alabama Water Resources Conference and Symposium. September 7-9. Orange Beach, Alabama.
130. Litton, J.*, **Blersch, D.M.** 2016. Benthic algae cultivation for recovery of nutrients from aquaponics wastewater. Oral presentation at the 2016 Alabama Water Resources Conference and Symposium. September 7-9. Orange Beach, Alabama.
131. Kardel, K.*, Carrano, A., **Blersch, D.M.** 2016. Using 3D-printed surface topographies to determine species attachment preferences in freshwater periphyton communities. Oral presentation at the 2016 Alabama Water Resources Conference and Symposium. September 7-9. Orange Beach, Alabama.
132. Kaur, M.*, **Blersch, D.M.** 2016. Effect of substratum topography on algal turf colonization and productivity under different nutrient concentrations. Oral presentation at the 2016 Alabama Water Resources Conference and Symposium. September 7-9. Orange Beach, Alabama.
133. Kaur, M.*, **Blersch, D.M.**, Carrano, A. 2016. Additive manufacturing for investigating effect of substratum topography on algal turf colonization and productivity under different nutrient concentrations. Poster presentation at the 2016 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 17-20. Orlando, FL.

134. Litton, J.*, **Blersch, D.M.** 2016. Benthic algal cultivation for recovery of nutrients from aquaponics wastewater. Oral presentation at the 2016 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 17-20. Orlando, FL.
135. Rains, J.*, **Blersch, D.M.** 2016. Pathogen die-off in algal turf scrubbers. Poster presentation at the 2016 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 17-20. Orlando, FL.
136. Kaur, M.*, **Blersch, D.M.**, Carrano, A. 2016. Effect of substratum topography on algal turf colonization and productivity under different nutrient concentrations. Poster presentation at the 2016 Alabama Stormwater Symposium. May 10-12, 2016. Auburn University, Auburn, AL.
137. Litton, J.*, **Blersch, D.M.** 2016. Benthic algae cultivation for recovery of nutrients from aquaponics wastewater. Poster presentation at the 2016 Alabama Stormwater Symposium. May 10-12, 2016. Auburn University, Auburn, AL.
138. Rains, J.*, **Blersch, D.M.** 2016. Pathogen removal in algal turf scrubbers. Poster presentation at the 2016 Alabama Stormwater Symposium. May 10-12, 2016. Auburn University, Auburn, AL.
139. Elliott, O.*, Nunnelley, A.*, Vogt, E.*, **Blersch, D.M.**, Gray, S.*, McClay, M.*, Nassief, B.*, Trott, Z.*, Carrano, A. 2016. 3D-printed bioreactor media design. Poster presentation at the 2016 EPA P3 Student Design Competition and 2016 USA Science and Engineering Festival. April 16-17, 2016. Washington, DC.
140. Rains, J.*, **Blersch, D.M.** 2016. Pathogen removal in algal turf scrubbers. Poster presentation at This is Research Student Symposium 2016. April 13, 2016. Auburn University, Auburn, AL.
141. Carrano, A.L., **Blersch, D.M.**, Kardel, K.* , Khoshkhoo, A.* 2016. Understanding attachment preferences of benthic algae through controlled surface topographies on 3D-printed substrata. Oral presentation at the 5th International Conference on Surface Metrology, April 4-7, 2016, Poznan University of Technology, Poland
142. Litton, J.*, **Blersch, D.M.** 2016. Benthic algae cultivation for the recovery of nutrients and wastewater treatment from aquaculture effluent. Oral presentation at the 2016 Alabama ASABE Section Meeting. April 1-2, 2016. Auburn University, Auburn, AL.
143. Elliott, O.*, Nunnelley, A.*, Vogt, E.*, **Blersch, D.M.**, Gray, S.*, McClay, M.*, Nassief, B.*, Trott, Z.*, Carrano, A. 2016. 3D-printed bioreactor media design. Poster presentation at the 2016 Alabama ASABE Section Meeting. April 1-2, 2016. Auburn University, Auburn, AL.
144. **Blersch, D.M.**, Carrano, A., Kardel, K., Kaur, M. 2015. Design of 3D printed substrata to enhance periphytic community colonization and productivity. Oral presentation at the 2015 Alabama Water Resources Conference and Symposium. September 9-11, 2015. Orange Beach, AL.
145. **Blersch, D.**⁺ 2015. Life in the Balance: Enhancement of ecological engineering curriculum with the balanced aquarium concept. 2015 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 26-29, 2015. New Orleans, Louisiana.
146. Kaur, M.⁺, **Blersch, D.**, Kardel, K.* , Carrano, A. 2015. Application of surface roughness engineering principles to optimize benthic algae biofilm colonization and biomass characteristics (poster session). 2015 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 26-29, 2015. New Orleans, Louisiana.
147. **Blersch, D.**⁺, Carrano, A., Kardel, K.* Kaur, M.*. 2015. Design of 3D printed substrata to enhance periphytic community colonization and productivity. 2015 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 26-29, 2015. New Orleans, Louisiana.

148. Rains, J.^{*,+}, **Blersch, D.** 2015. A re-circulating flow lane photo incubator for benthic algae experiments (poster session). 2015 Annual Meeting of the American Society of Agricultural and Biological Engineers (ASABE). July 26-29, 2015. New Orleans, Louisiana.
149. Kardel, K.^{*,+}, Carrano, A., **Blersch, D.** 2015. Preliminary development of 3D printed custom substrata for benthic algal biofilms. Industrial and Systems Engineering Research Conference (ISERC 2015). May 30- June 2, 2015. Nashville, Tennessee.
150. Blanton, J.^{*}, **Blersch, D.**⁺ 2015. Self-optimization of mixed algal communities via automated feedback control of light input. (Poster Session). 2015 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, 2015, Stillwater, Oklahoma.
151. **Blersch, D.**⁺, Carrano, A. Kardel, K.^{*}, Kaur, M.^{*}, Khoshkhoo, A.^{*}, Proano, G.^{*}. 2015. The shape of things to come: Reverse-engineering periphyton colonization processes using 3D printing. 2015 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, 2015, Stillwater, Oklahoma.
152. **Blersch, D.**, Winfrey, B., Kangas, P. 2015. A history of the AEES student design competition. (Poster Session). 2015 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, 2015, Stillwater, OK.
153. **Blersch, D.** 2014. Performance evaluation of large-scale algal cultivation for pollution recovery and water quality restoration in urban watersheds of the lower Great Lakes. (Poster presentation). Conference on Ecological and Ecosystem Restoration (CEER), July 28-August 1, New Orleans, Louisiana.
154. Srivastava, P.⁺, **Blersch, D.**, Fasina, O., Chaudhury, S.R., Raju, P.K. 2014. Transforming ecological engineering education using a hybrid pedagogical approach. 2014 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, Charleston, South Carolina.
155. **Blersch, D.**⁺ 2014. Performance of large-scale algal cultivation for urban water quality restoration in the Great Lakes. 2014 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, Charleston, South Carolina.
156. McGehee, R.^{*,+}, **Blersch, D.**, Srivastava, P. 2014. A case study for ecological engineering education: Agricultural Heritage Park stormwater wetland design. (Poster Presentation). 2014 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, Charleston, South Carolina.
157. Blanton, J.,^{*,+} **Blersch, D.** 2014. Self-optimization of mixed algal communities via automated feedback control of light input. (Poster presentation). 2014 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, Charleston, South Carolina.
158. Elliott, O.^{*,+}, **Blersch, D.** 2014. Correlation of productivity and environmental factors in pilot-scale algal turf scrubbing in the Great Lakes. (Poster presentation). 2014 Annual Meeting of the American Ecological Engineering Society (AEES), June 6-9, Charleston, South Carolina.
159. **Blersch, D.** 2014. Review of biomass productivity and quality from algal turf scrubbing installations. Department of Energy Algal Biofuels Strategy Workshop, March 25-26, Charleston, South Carolina.
160. Copeland, L.,**Blersch, D.M.**, Rabideau, A.J. 2013 Using social network analysis to measure interdisciplinary training. American Evaluation Association *Evaluation 2013*, 14-19 Oct., Washington, DCI.
161. Alzate*, A., **Blersch**⁺, **D.M.** 2013. Cultivation of benthic filamentous algae for pollution recovery from urban waterways: performance and economic evaluation. Poster presentation at the Alabama Water Resources Conference, 4-6 September, Perdido Beach Resort, Orange Beach, Alabama.

162. Fanou^{*+}, C., Alzate^{*}, A., **Blersch, D.M.** 2013. Model development of a dump bucket mechanism for wave induced systems of filamentous algae. Poster presentation at the 2013 University at Buffalo McNair Research Conference, 11-13 July 2013, The Conference Center of Niagara Falls, Niagara Falls, NY.
163. Levy^{*+}, D., LaPorte^{*}, W., Alzate^{*}, A., **Blersch, D.M.** 2013. Structural properties of filamentous algae. Poster presentation at the 2013 University at Buffalo McNair Research Conference, 11-13 July 2013, The Conference Center of Niagara Falls, Niagara Falls, NY.
164. LaPorte^{*+}, W., Levy^{*}, D., Alzate^{*}, A., **Blersch, D.M.** 2013. The measurement of structural properties of filamentous algae in a simply supported element model. Poster presentation at the LSAMP Research Symposium, 10 July, State University of New York at Buffalo, Buffalo, NY
165. Böhlen⁺, M., Clark, B., Dalton, J., Atkinson, J., **Blersch, D.M.**, Yang., L. 2013. Another day at the beach: A new approach to monitoring public recreational beach waters. Oral presentation at the 9th International Conference on Intelligent Environments, 18-19 July, Divani Palace Acropolis Hotel, Athens, Greece.
166. Alzate^{*+}, A.F., **Blersch, D.M.** 2013. Pilot-scale testing of benthic filamentous algae cultivation for pollution recovery from fresh surface waters in the Great Lakes. Poster presentation at the 3rd International Conference on Algal Biomass, Biofuels and Bioproducts, 16 - 19 June, Sheraton Centre Toronto Hotel, Toronto, Canada.
167. Byrley^{*+}, P., **Blersch, D.M.** 2013. Evaluation of a floating algae cultivator for water pollution control and biomass production. Poster presentation at the 3rd International Conference on Algal Biomass, Biofuels and Bioproducts, 16 - 19 June, The Sheraton Centre Toronto Hotel, Toronto, Canada.
168. Byrley^{*}, P., **Blersch⁺, D.M.** 2013. A floating algae cultivator for water pollution control and biomass production. Poster presentation at the 13th Annual Meeting of the American Ecological Engineering Society, 10-12 June, Kellogg Hotel and Conference Center, East Lansing, Michigan.
169. **Blersch, D.M.** 2013. Phytoremediation of contaminated groundwater through natural methods. **Invited** oral presentation at the 32nd Annual Greater Buffalo Environmental Conference (GBEC), New York Water Environment Association Western Chapter, 26 March, Hearthstone Manor, Depew, New York.
170. Blersch⁺, S.S., **Blersch, D.M.**, Atkinson, J.F. 2012. Hydraulic signatures of ecosystem integrity: A modeling framework for evaluating stream restoration techniques. Oral presentation at the 4th International Ecosummit on Ecological Sustainability, September 30-October 5, Columbus, Ohio.
171. **Blersch, D.M.**, Alzate^{*+}, A.F. 2012. Investigating the relationship between fluid mechanics and growth of benthic filamentous algae. Oral presentation at the 2nd International Conference on Algal Biomass, Biofuels & Bioproducts, June 10-13, 2012, San Diego, California.
172. **Blersch⁺, D.M.**, Yung^{*}, W., Blersch, S.S. 2012. Net community metabolism measurement in streams as a predictor of groundwater influx and its implications for restoration. Presentation at the 12th Annual American Ecological Engineering Society Meeting, June 7-9, State University of New York College of Environmental Science and Forestry, Syracuse, New York.
173. **Blersch, D.M.**, Blersch⁺, S.S., Habberfield, M., Hannes, I., Malzone, J., Whiteway, S. 2012. The disconnect between ecosystem services concept and ecosystem function in stream restoration: Where do we go from here? Presentation at the 12th Annual American Ecological Engineering Society Meeting, June 7-9, State University of New York College of Environmental Science and Forestry, Syracuse, New York.

174. **Blersch⁺, D.M.**, Hennessy*, E.A., Byrley*, P. 2012. Assessment of benthic algal cultivation for phosphorus recapture in the lower Great Lakes. Presentation at the 55th Annual Conference of the International Association for Great Lakes Research, May 13-17, NavCentre, Cornwall, Ontario.
175. Byrley*⁺, P., Hennessy*, E.A., **Blersch, D.M.** 2012. Assessment of a floating algae cultivator for water pollution control and biomass production. Poster presentation at the Celebration of Academic Excellence, April 5, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, New York.
176. Hennessy*⁺, E.A., Byrley*, P., **Blersch, D.M.** 2012. Determining biofuels potential for cultivated filamentous algae for water quality management. Poster presentation at the Celebration of Academic Excellence, April 5, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, New York.
177. Alzate*⁺, A.F., **Blersch, D.M.** 2012. Investigating the relationship between fluid mechanics and benthic algal growth. Oral presentation given at the 22nd Annual Great Lakes Research Consortium Conference, March 30-31, State University of New York at Oswego, New York.
178. Byrley*⁺, P., Hennessy*, E.A., **Blersch, D.M.** 2012. Assessment of a floating algae cultivator for water pollution control and biomass production. Poster presentation at the 22nd Annual Great Lakes Research Consortium Conference, March 30-31, State University of New York at Oswego, New York.
179. Hennessy*, E.A., Byrley*⁺, P., **Blersch, D.M.** 2012. Determining biofuels potential for cultivated filamentous algae for water quality management. Poster presentation at the 22nd Annual Great Lakes Research Consortium Conference, March 30-31, State University of New York at Oswego, New York.
180. **Blersch, D.M.** 2012. Algae cultivation in wastewater engineering: Current developments and opportunities for solar aquatic nutrient recovery. **Invited** presentation at the 30th Annual Greater Buffalo Environmental Conference (GBEC), New York Water Environment Association Western Chapter, 27 March, Hearthstone Manor, Depew, New York.
181. **Blersch⁺, D.M.**, Copeland, L., Rabideau, A. 2011. A case study in interdisciplinary collaborative education in ecosystem restoration: The ERIE Practicum at the University at Buffalo. Poster presentation at the 4th National Conference on Ecosystem Restoration, August 1-5, Baltimore Marriott Waterfront, Baltimore, Maryland.
182. Yung*⁺, W., **Blersch, D.M.** 2011. Primary production and community respiration in different cross-sections of Elton Creek. Poster presentation at the Ecosystem Restoration through Interdisciplinary Exchange REU Symposium, July 20, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, NY.
183. Stewart*⁺, D.T.R., **Blersch, D.M.**, Donhauser*, J.C., Habberfield*, M.W., Mackintosh*, S.A., and Rabideau, A.J. 2011. Design and implementation of a phytoremediation system for groundwater impacted by chlorinated solvents: a field application. Laurentian Chapter of the Society of Environmental Toxicology and Chemistry 16th Annual General Meeting, June, Elgin, Ontario, Canada.
184. Hennessy*⁺, E., **Blersch, D.M.** 2011. Ash and phosphorus content of mass harvested from an algal turf scrubber on the Black Rock canal. Poster presentation at the Ecosystem Restoration through Interdisciplinary Exchange REU Symposium, July 20, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, New York.
185. Hennessy*⁺, E., **Blersch, D.M.** 2011. Optimizing engineered algae cultivation for pollution control in western New York watersheds. Poster presentation at the Celebration of Academic Excellence, April 6, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, New York.
186. Blersch⁺, S.S., Atkinson, J.F., **Blersch, D.M.**, Bennett, S.J. 2010. A modeling framework for evaluating stream restoration techniques and ecosystem response. Poster presentation at the American

- Geophysical Union 2010 Fall Meeting, 13-17 December, Moscone Convention Center, San Francisco, California. Abstract #H43D-1279.
187. Wolfe⁺, G., Bowen⁺, P., **Blersch⁺, D.M.**, Rabideau, A.J. 2010. Streams of Thought: Teaching art through science and science through art. Panel presentation at the North American Association for Environmental Educators 7th Annual Research Symposium, Sept 28-29, Hyatt Regency, Buffalo, New York.
 188. **Blersch⁺, D.M.**, Rabideau, A.J. 2010. A case study in university-level interdisciplinary education in ecosystem restoration. Poster presentation at the North American Association for Environmental Education 39th Annual Conference, Sept. 29-Oct. 2, Buffalo-Niagara Convention Center, Buffalo, New York.
 189. **Blersch⁺, D.M.**, Rabideau, A.J. 2010. Ecosystem Restoration through Interdisciplinary Exchange (ERIE): An interdisciplinary doctoral program at the University at Buffalo. Poster presentation at the North American Association for Environmental Education 7th Annual Research Symposium, Sept. 28-29, Hyatt Regency, Buffalo, New York.
 190. Siao⁺, K., **Blersch, D.M.** 2010. Assessing the viability of regional algae for an engineered algae cultivator for nutrient scrubbing. Poster presentation at the Ecosystem Restoration through Interdisciplinary Exchange REU Symposium, August 4, State University of New York at Buffalo, Center for the Performing Arts, Buffalo, NY.
 191. **Blersch⁺, D.M.**, Kangas, P.C. 2010. Engineering autonomy in an algal turf scrubber technoecosystem. Oral presentation given at the 10th Annual Meeting American Ecological Engineering Society, 17th World Congress International Commission of Agricultural and Biosystems Engineering, June 13-17, Convention Centre, Quebec City, Canada.
 192. **Blersch⁺, D.M.**, Rabideau, A.J. 2010. The Earsing Sills Oxbow Wetland restoration effort: A case study in interdisciplinary collaborative education in ecosystem restoration. Oral presentation given at the 10th Annual Meeting of the American Ecological Engineering Society, 17th World Congress of the International Commission of Agricultural and Biosystems Engineering, June 13-17, Convention Centre, Quebec City, Canada.
 193. **Blersch, D.M.** 2010. Technoecosystem microcosms as analog representations of human-nature interactions. Oral presentation given at the University at Buffalo GI Science IGERT Symposium, Representing Reality: Imagery in the Cognitive, Social and Natural Sciences. May 12-15, Adams Mark Hotel, Buffalo, New York.
 194. Blersch, S.S., Clabeaux*, B., Drag*, N., Earle*, R., Habberfield*, M., Seneca*, S., **Blersch⁺, D.M.**, and Rabideau, A.J. 2010. Interdisciplinary education for restoration planning: A Practicum exercise in to develop restoration options for remnant oxbow wetlands in Buffalo, New York. Poster presentation at the Society of Ecological Restoration Mid-Atlantic Chapter Meeting, February 19, Rutgers University, New Brunswick, NJ.
 195. **Blersch, D.M.** 2009. Engineering autonomy in an algal turf scrubber technoecosystem. Oral presentation given at the ASABE Annual Conference, Applications of Ecological Engineering subgroup, June 2009, Reno, NV.
 196. **Blersch⁺, D.M.**, and Rabideau, A. 2009. A new interdisciplinary doctoral program in ecosystem restoration at the University at Buffalo. Poster presentation at the Society for Ecological Restoration Midwest-Great Lakes Chapter Annual Meeting, April 2009, Indianapolis, Indiana.
 197. **Blersch, D.M.** 2009. Aquatic ecosystem development for wastewater treatment. **Invited** presentation at the 27th Annual Greater Buffalo Environmental Conference (GBEC), 29 March, Hearthstone Manor, Depew, NY.

198. **Blersch, D.M.**, Mulbry, W.W., and Kangas⁺, P.C. 2008. Whence the hybrid? Engineering autonomy in an algal turf scrubber technoecosystem. Poster presentation given at the 8th Annual American Ecological Engineering Society Conference, June 11-14, Virginia Tech, Blacksburg, Virginia.
199. **Blersch, D.M.** 2007. Towards an autonomous algal turf scrubber technoecosystem. Oral presentation at the 7th American Ecological Engineering Society Conference, May 23-25. Kansas State University, Manhattan, KS.
200. Lo⁺, Y.M., Vargas, A., and **Blersch, D.M.** 2007. Portable biodetector integrating bioluminescent sensing cells with real-time signal acquisition and processing. CIGR Section VI – 3rd International Symposium: Food and Agricultural Products: Processing and Innovations, Sep. 24-26, Naples, Italy.
201. **Blersch⁺, D.M.**, Kangas, P., Mulbry, W.W. 2006. How much is enough? Effect of turbulence on algal productivity. Poster presentation at the 6th Annual American Ecological Engineering Society Conference, April 13-14. University of California Berkeley, Berkeley, California.
202. Kangas, P., Sharpe⁺, P., **Blersch, D.M.** 2006. Design for an iron cycle microcosm. Poster presentation at the 6th Annual American Ecological Engineering Society Conference, April 13-14. University of California Berkeley, Berkeley, California.
203. Pizarro, C., Mulbry, W., **Blersch⁺, D.M.**, Kangas, P. 2005. An economic assessment of algal turf scrubber technology for treatment of dairy wastewater. Poster presentation at the 5th Annual American Ecological Engineering Society Conference, May 18-20, 2005. The Ohio State University, Columbus, Ohio.
204. **Blersch, D.M.** 2004. Conceptual basis for ecological prosthetics as a subclass of technoecosystem engineering. Poster presentation at the 4th Annual American Ecological Engineering Society Conference, June 9-12, 2004. University of Arkansas, Fayetteville, Arkansas.
205. Ganeshan⁺, P., Greene, S., Walsh, W., **Blersch, D.M.**, Kangas, P. 2004. Sewage treatment simulation in a greenhouse-based ecomachine. Poster presentation at the 4th Annual American Ecological Engineering Society Conference, June 9-12, 2004. University of Arkansas, Fayetteville, Arkansas.
206. **Blersch⁺, D.M.**, Mulbry, W., Kangas, P. 2004. Emergy of algae revisited: Comparisons of algal-based wastewater treatment systems. Poster presentation at the 3rd Biennial Emergy Research Conference, January 29-31, 2004. Center for Environmental Policy, University of Florida, Gainesville, Florida.
207. Kangas, P., **Blersch, D.M.**, Calahan⁺, D. 2003. Living machines out of control; Experiments in autonomous ecological engineering. Oral presentation at the 50th AVS International Symposium and Exhibition, November 2-7, 2003, Baltimore, Maryland.
208. **Blersch⁺, D.M.**, Calahan, D., Fisher, G., Kangas, P. 2003. Mars Society's Project Greenhab: A living machine platform for gray water recycling and bioregenerative life support research in the Utah desert. Poster presentation at the Green Design Conference 2003, Penn State University, April 11-13, University Park, PA.
209. **Blersch⁺, D.M.** 2002. Semi-autonomous microcosms: Constructing technoecosystems as a window to principles of ecological engineering. Poster presentation at the American Ecological Engineering Society's 2002 Annual Meeting, April 28-30, Burlington, Vermont.
210. **Blersch⁺, D.M.**, Calahan, D., Kangas, P. 2002. Development of a unique greenhouse-based wastewater treatment system. Poster presentation at the American Ecological Engineering Society's 2002 Annual Meeting, April 28-30, Burlington, Vermont.

211. **Blersch, D.M.** 2001. What would happen if an ecosystem were given control over its own energy source? Investigations into technoecosystem behavior. Poster presentation at the University of Maryland's Marine Estuarine and Environmental Science Program Colloquium, November 2-3, College Park, Maryland.
212. Calahan⁺, D., **Blersch, D.M.**, Kangas, P. 2001. Algal turf scrubber technology for base building and terraformation of Mars. Oral presentation given at the Fourth Annual Convention of the Mars Society, August 23-26, Stanford University, Stanford, California.
213. **Blersch, D.M.** 2001. Devising a technoecosystem: Development of an automatic monitoring and control system for wastewater treatment wetlands. **Invited** presentation at the Biological Resources Engineering Department Seminar, May 7, University of Maryland, College Park, Maryland.
214. Stack, R., **Blersch⁺, D.**, Peterson, J., Lynch, S., Adornato, J., Kangas, P. 2001. Reverse engineering of a beaver dam as an ecologically-engineered structure. Poster presentation at the American Ecological Engineering Society's Inaugural Meeting, April 30-May 2, University of Georgia, Athens, Georgia.
215. **Blersch, D.M.** 2001. Applications of ecological engineering as a platform for multifunctional resource recovery. **Oral** presentation at NASA Johnson Space Center's Office of Advanced Life Support, March 9, Houston, Texas.
216. **Blersch, D.M.** 2000. A proposed design for wastewater treatment and recycling at the Flashline Mars Arctic Research Station utilizing living machine technology. Oral presentation given at the Third Annual Convention of the Mars Society, August 10-13, Ryerson Polytechnic University, Toronto, Ontario, Canada.
217. **Blersch, D.M.** 1999. Preliminary design considerations for the MARS wastewater treatment system. Presentation given at the Second Annual Convention of the Mars Society, August 12-15, University of Colorado, Boulder, Colorado.

Grants and Contracts (Total: > \$30 million. Dr. Blersch's Share: >\$2.5 million)

1. Blersch, D. (PI), Bashan, L., Gonzalez, L., Cline, D., Sans-Saez, A. Integrated bioreactor system for aquaculture wastewater treatment and biofertilizers production using synthetic microbial consortium. USDA NIFA. 09/01/2026 – 08/31/2029. \$649,820 (\$425,000).
2. Blersch, D. (PI), Bashan, L., Cubas, F., Gonzalez, L., Kardel, K., Perez, R., Rowles, S. A new scalable hydrogel bioreactor for nutrient recovery in the GOA. US EPA Gulf of America Division Program. 07/01/2026 – 06/30/2029. \$977,777 (\$402,887).
3. Proano, G., Blersch, D. (PI). Fuzzy logic based digital twin framework for Spirogyra monitoring in Alabama. Alabama Agricultural Experiment Station, Auburn University. 01/05/2026 – 12/31/2026. \$10,000 (\$10,000).
4. Davis, R., Blersch, D. (co-PI), et al. Attached algae toolkit for carbon negative biofuels from water treatment. U.S. Department of Energy, Sandia National Laboratory. 01/31/2024 – 09/30/2026. \$75,000.
5. Higgins, B., Blersch, D.M., et al. Developing an advanced technology driven poultry production processing systems to ensure a resilient future for the U.S. poultry industry. 09/01/2022 – 08/31/2027. \$7,500,000 (\$235,853).
6. Higgins, B., Adhikari, S., Potnis, N., Wells, D., Blersch, D.M., Cline, D., Pickens, J., Jahromi, H. Reimagining controlled environment agriculture in a low carbon world. USDA NIFA Sustainable Agricultural Systems. 04/01/2023 – 03/31/2028. \$9,943,110 (\$497,155).
7. Wells, D., Salazar, M., Rodrigues, C., Higgins, B., Blersch, D.M., Davis, A., Bruce, T., Cline, D. Developing sustainable aquaponics production systems. USDA NIFA Appropriations. 07/01/2021 – 06/30/2026. \$10,000,000 (\$500,000).
8. Linhoss, J., Blersch, D. Equipment grant for Instructional Activities. Imagine Grant, Campbell Scientific. 05/01/2022 – 12/01/2022. \$20,000 (\$10,000)

9. Blersch, D., Linhoss, A. Spectrophotometer Instrumentation for Ecological Engineering classes. College of Agriculture Instructional Grant, Auburn University. 08/01/2022 – 12/01/2022. \$7,878.
10. Hoang, T., Tomasso, J., Wang, D., Wilson, A., Ojeda, A., Lotsch, P., Davis, J., Sou, S., Blersch, D.M. Mission Enhancement Fund: Equipment need to enhance research collaboration towards future development of a research Center for Ecotoxicology and Risk Assessment. Office of the Provost, Auburn University. 11/15/2022 – 11/14/2025. \$380,000 (\$38,000).
11. Hayworth, J. Schwartz, D., Stoeckel, J., Panizzi, J., Biancardi, V., Blersch, D. PAIR Tier 1: Emerging contaminants research team. Office of the Vice President of Research, Auburn University, 08/01/2018 – 07/31/2021. \$150,000 (\$30,000).
12. Hanson, T., Higgins, B., Blersch, D., Wells, D. Life cycle analysis and economics of commercial aquaponics systems,” Auburn AAES Hatch Interdisciplinary Research Program. 09/02/2018 – 08/31/2020. \$145,676 (\$20,000).
13. Blersch, D., MacDonald, T., Stoeckel, J. Data Acquisition for Aquatic Ecosystems. Undergraduate Research Office, Auburn University. 6/17-5/18, \$6,400 (\$6,400).
14. Hanson, T., Wells, D., Huang, T., Blersch, D. (20%), Chappell, J. Aquaponics - A Sustainable Way Forward. USDA 2017-38420-26765. 6/17-6/22, \$243,500 (\$50,000).
15. Blersch, D., Wells, D., Hanson, T., Chappell, J., McQuilling, A. Systems modeling of nitrogen recycling in multi-trophic aquaculture production. NIFA USDA-2017-67020-26398. 5/17-4/20, \$499,952 (\$250,000).
16. Hanson, T., Wells, D., Huang, T., Blersch, D., Chappell, J. Improving aquaculture’s value through enhanced nutrient management. USDA-2016-70007-25758. 9/16-9/18, \$300,000 (\$60,000).
17. Blersch, D. Sediment Recovery by Benthic Algal Cultivation. Office of the Vice President of Research Internal Grants, Auburn University. 4/2016-3/2017, \$9,000.
18. Davis, V., Blersch, D., Carrano, A. Novel biodegradable materials for additive manufacturing of complex scaffolds for algal bioremediation systems. National Science Foundation MME #1563160. 4/2016-3/2017, \$49,999 (\$12,500).
19. Knappenberger, T., Shepherd, S., Blersch, D., Helms, B., Howe, J., Brantley, E., Stoeckel, J. Stream Restoration: Development of an undergraduate course on methods of inquiry in stream restoration. Office of Undergraduate Research, Auburn University. 5/2016 – 5/2017, \$10,000 (\$1500).
20. Blersch, D., Carrano, A. Removing Nitrogen from Fisheries Effluent. USEPA-83695101. 2/17-1/19, \$74,310 (\$37,155).
21. Hanson, T., Chappel, J., Blersch, D., Wells, D. Aquaculture Critical Control Points. United Soy Board #1630-512-5211. 1/16-12/16, \$100,000 (\$25,000).
22. Carrano, A., Blersch, D. Development of 3D-printed surfaces for ultra-high surface area trickling biofilters for water pollution remediation. USEPA #G2015-P3-Q4-Water. 9/15-8/16, \$14,903 (\$7,450).
23. Blersch, D., Carrano, A. Design of 3D printed benthic substrata for gnotobiotic periphytic communities. Office of the Vice President of Research, Auburn University. 5/2014-5/2015, \$50,000 (\$25,000).
24. Blersch, D. Co-cultivation of benthic algal biofilms for nutrient repurposing in sustainable multi-trophic aquaculture production systems. Alabama Agricultural Experiment Station Hatch Funding Program. 10/2014-10/2016, \$40,000
25. Blersch, D., Srivastava, P. Life in the Balance: Enhancement of ecological engineering curriculum with the balanced aquarium concept. Daniel F. Breeden Endowed Grant Program, Biggio Center for the Enhancement of Teaching and Learning, Auburn University. 5/2014-4/2015, \$3980 (\$3980).
26. Blersch, D. Development of algae cultivation for nutrient recovery from the near shore Great Lakes in Buffalo, New York. New York State Pollution Prevention Institute, Rochester, NY. 1/15/2013 – 6/21/2013, \$29,815.
27. Blersch, D., Rabideau, A. Phytoremediation at the Machias Gravel Pit Site. sponsor: Motorola, 8/15/2009 – 8/14/2015, \$180,000 (\$30,000).
28. Beckinghausen, A., Blersch, D. Evaluation of beach monitoring and notification systems for recreational bathing. 5/31/12-8/31/12, \$385, Center for Undergraduate Research and Creative Activities, University at Buffalo.

29. Byrley, P., Blersch, D. Assessment of a floating algae cultivator for water pollution control and biomass production. 3/31/12-12/31/12, \$1000, Center for Undergraduate Research and Creative Activities, University at Buffalo.

PROFESSIONAL AND ACADEMIC SERVICE

Service to University

- University Patent & Invention Committee, Auburn University (2024 – present)
- Rules Committee member, University Faculty Senate, Auburn University (2022 – 2024)
- Senator, departmental representative, University Faculty Senate, Auburn University (2020 – 2026)
- Faculty Senate Representative, College of Pharmacy Dean Search Committee, Auburn University (2022-2023)
- Senate Appointee to Administrator Review committee: Entomology & Plant Pathology Department (2023 – 2024)
- Stormwater Design and Advisory Committee, Auburn University (2016-2026)
- University Repr., Transborder Research University Network (TRUN), SUNY Buffalo (2010)
- University Repr., W Seneca Oxbow Wetland Tech Advisory Group, SUNY Buffalo (2009-2010)

Service to the AU Engineering and Agriculture Colleges

- Member, Train-the-Trainer Diversity Equity Inclusion committee, Samuel Ginn College of Engineering, Auburn University (2022-2023)
- Member, Advisory Board, Auburn Grand Challenges Scholars Program, Samuel Ginn College of Engineering, Auburn University (2021 – 2024)
- Member, Instructional Advisory Committee, College of Agriculture, Auburn University (2019 – present)
- York International Scholars Review Committee, Auburn University (2017-2021)
- Budget Advisory Committee, College of Agriculture, Auburn University (2015-2018)
- Undergraduate Research Committee, College of Engineering, Auburn University (2015-2021)

Service to Biosystems Engineering Department

- Faculty Coordinator, Graduate Certificate Program in Ecosystems Engineering (2021-present)
- Curriculum and Assessment Committee (2017-present)
- Graduate Admissions Committee (2016-present)
- Faculty Search Committee, Bioprocess Engineering (2014-2015)
- Faculty Search Committee, Precision Agriculture (2015-2016)
- Faculty Search Committee, Ecological Engineering (2015-2016)
- Faculty Advisor, Student for Clean Water, Auburn University (2024 – present)

Grant Review Panels and Ad-Hoc Reviews

- National Science Foundation (multiple programs) (2022, 2026)
- U.S. Department of Agriculture (multiple programs) (2023, 2026)
- Maryland Industrial Partnerships Program (2022, 2025)
- North Carolina Sea Grant (2025)

Society Membership

- American Ecological Engineering Society (2001 – Present)
- American Society of Agricultural and Biological Engineers (2005 – Present)
- American Society of Civil Engineers (2003 – 2012)
- North American Benthological Society (2008 – 2013)

- Great Lakes Research Consortium (2010 – 2013)
- International Association of Great Lakes Research (2012-2013)

Service Activities

- Editorial Board
 - *Journal of Ecological Engineering Design*, American Ecological Engineering Society (Associate Editor, 2023 - present)
 - *Applied Engineering in Agriculture*, American Society of Agricultural and Biological Engineering (Associate Editor, 2022 - present)
 - *World Review of Science, Technology, and Sustainable Development*, Inderscience Publishers (2010 - present)
- Manuscript peer reviewer (100+ total) (year started)
 - *ACS Sustainable Chemistry & Engineering*, American Chemical Society (2019 - present)
 - *ACS Sustainability*, American Chemical Society (2023 – present)
 - *Algal Research*, Elsevier (2013 - present)
 - *Applied Biochemistry and Biotechnology*, Springer (2022 - present)
 - *Applied Energy*, Elsevier (2019 - present)
 - *Applied Engineering in Agriculture*, ASABE (2016 - present)
 - *Applied Microbiology and Biotechnology*, Springer (2018 - present)
 - *Applied Sciences*, MDPI (2023 - present)
 - *Aquacultural Engineering*, Aquacultural Engineering Society (2020 – present)
 - *Biotechnology Progress*, AIChE (2023 – present)
 - *Bioremediation Journal*, (2024 – present)
 - *Ecological Engineering*, Elsevier (2009 - present)
 - *Ecological Modelling*, Elsevier (2012 – present)
 - *Journal of the ASABE*, ASABE (2016 – present)
 - *Hydrology*, MDPI (2023 - present)
 - *Journal of Applied Phycology*, Springer (2015 – present)
 - *Journal of Biobased Materials and Bioenergy*, (2024 – present)
 - *Journal of Ecological Engineering Design* (2022 – present)
 - *Journal of Environmental Management*, Elsevier (2020 – present)
 - *Journal of Hazardous Materials*, Elsevier (2011 – present)
 - *Landscape and Urban Planning*, Elsevier (2010 – present)
 - *Molecules*, MDPI (2020 - present)
 - *Physiological Entomology*, Royal Entomological Society (2020)
 - *Plants*, MDPI (2024 – present)
 - *Reviews in Fisheries Science and Aquaculture*, Taylor & Francis (2019 – present)
 - *Water*, MDPI (2019 – present)
 - *Water Environment Research*, Water Environment Federation (2013 – present)
 - *Water Practice & Technology*, (2024 – present)
 - *Water Resources Research*, American Geophysical Union (2012 – present)
 - *Water Science and Technology*, IWA Publishing (2017 – present)
 - *Water Supply*, IWA Publishing (2022 –) present
 - *World Review of Science, Technology and Sust. Development*, Inderscience (2010 - 2012)
- Professional Society Service
 - ASABE Committee Representative
 - NRES-28 Committee Chair (2016-2017)
 - NRES-28 Committee vice-Chair (2015-2016)
 - NRES-28 Committee Secretary (2014-2015)
 - NRES-03 Standards Oversight Committee (2018 – 2023)

- NRES-07 Nomenclature Oversight Committee (2023 – present)
- NRES-25 Streams Wetlands Reservoirs Member (2015 – present)
- NRES-26 Sustainable Landscapes Member (2023 – present)
- NRES-28 Ecological Engineering member (2013 – present)
- ASABE Alabama Section (member 2014 – present)
 - Section Executive Committee Chair (2020 – present)
 - Section Executive Committee Programs chair (2019-2020)
- American Ecological Engineering Society
 - Past President, Executive Committee (2024 – 2025)
 - President, Executive Committee (2023 – 2024)
 - Vice-President, Executive Committee (2022-2023)
 - Chair, Professional Certification Committee (2021 – Present)
 - Secretary, Executive Committee (2019-2021)
 - Body of Knowledge Committee co-Chair (2009-2020)
 - Conference Planning Committee (2012, 2014, 2025)

Promotion & Tenure Letter Preparation

- Georgia Southern University. Statesboro, GA. 2023
- Auburn University. Auburn, AL. 2019
- Auburn University. Auburn, AL. 2016.

OTHER PROFESSIONAL EXPERIENCE

N-O-M-A-D LLC. (Baltimore, Maryland, USA)

Ecological Engineering Consultant

1/03 – 8/08

Consultant for design consultancy group for sustainable design projects in the U.S. and Europe.

PCCI Marine and Environmental Engineering (Alexandria & Williamsburg, Virginia, USA)

Environmental Engineering Consultant

1/94 – 1/99

Provided project engineering and regulatory consulting for oil spill response programs in the U.S. Navy and U.S. Coast Guard.