Lucas Michael Goodman

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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, VA — *Aug 2020 - present*
PhD Student, Biological Systems Engineering — GPA: 3.35

Iowa State University, Ames, IA — *Jan 2017 - Dec 2019*
Bachelor of Science in Animal Ecology and Environmental Studies — GPA: 3.58

Des Moines Area Community College, Ankeny, IA — *Aug 2015 - Dec 2016*
General Education Pre-Requisites — GPA: 3.49

RESEARCH EXPERIENCE

***Research Assistant,* Hydroecology & Watershed Engineering Lab** — *Aug 2020 - present*
Virginia Tech, Biological Systems Engineering Department
PIs: Dr. Durelle Scott, Dr. Erich Hester

- Quantifying cumulative stream restoration effectiveness (hyporheic and floodplain) and watershed-scale controls for reducing nitrate loads in Susquehanna River watershed using HEC-RAS and R

***Independent Undergraduate Researcher*, Applied Geomorphology Lab** — *Aug 2019 - present*
Iowa State University, Natural Resource Ecology Management Department
PIs: Dr. Peter Moore, Dr. Kristie Franz, Dr. Laura Merrick

- Investigating the role of stream restoration efforts in altering hydrodynamics within the system
- Orchestrated and managed stream measurement efforts while mentoring an undergraduate field technician
- Developing a HEC-RAS model to assess changes in flood-carrying capacity after stream restoration efforts using pre-restoration LiDAR data and design DEM data
- Incorporated cross-sections into model, merged field measurements with design DEM to improve cross-section accuracy, and interpolated data when necessary
- Presented at local conference (Iowa State University Science with Practice Symposium Fall 2019)

***Independent Undergraduate Researcher*, Healthy Streams Healthy Coasts NSF REU** — *June - July 2019*
University of Louisiana at Lafayette, Civil Engineering Department
PI: Dr. Robert Miller

- Developed a computational geospatial water budget model for Vermilion River, Louisiana using HEC-RAS, QGIS, R, and MATLAB to simulate flow dynamics to better understand the relationship between flooding and poor water quality
- Partitioned model into compartments to understand flow interactions within the system using data from a catastrophic flooding event in 2016
- Predicted the effects of future river modification projects and climate change on water quality dynamics and flooding events
- Gathered input data (precipitation and evapotranspiration) from publicly available sources (i.e., U.S. Geological Survey, Lafayette, LA Regional airport, Louisiana State University AgCenter)
- Incorporated net flow rate data and digital elevation model into HEC-RAS model
- Presented at international conference (*Coastal and Estuarine Research Federation Conference 2019) and regional conference (SUS-RURI: Developing a Convergence SUS Agenda for Redesigning the Urban-Rural Interface along the Mississippi River Watershed)

***Independent Undergraduate Researcher*, Watershed Conservation Lab** *Aug 2018 - May 2019*
Iowa State University, Natural Resource Ecology and Management Department
PIs: Dr. Thomas Isenhart, Dr. Emily Zimmerman

- Used ArcGIS to model best management practices for mitigating nitrate and phosphorus runoff from agricultural landscapes in Iowa
- Incorporated hydrology with crop productivity and land rental value to determine most environmentally and economically viable conservation planning strategies
- Presented at national conference (21st Annual Texas National McNair Scholars Research Conference)

Research Team Member *Aug 2018 - May 2019*
Iowa State University, Ronald E. McNair Postbaccalaureate Achievement Program
Supervisors: Dr. Ashley Garrin, Thelma Harding

- Investigated how cultural empathy, or lack thereof, affects relationships between graduate students and academic mentors at a predominantly white institution (Iowa State University)
- Surveyed graduate students and faculty by crafting and conducting personal interviews
- Collaborated with peers to synthesize qualitative data from interviews, find commonalities, and assess reoccurring themes

***Independent Undergraduate Researcher*, Sustainable RIVER NSF REU** *May - Aug 2018*
University of South Dakota, Biology Department
PI: Dr. Jacob Kerby, Supervisor: Anna Kase (Ph.D. Candidate)

- Investigated influence of habitat alteration on false map turtle (*Graptemys pseudogeographica*) assemblages in anthropogenically disturbed riverine systems
- Surveyed Missouri River, SD for multiple turtle species using traps, visual surveys, and environmental DNA samples
- Assisted graduate students with turtle, amphibian, fish, and benthic invertebrate sampling in riverine and wetland systems as well as freshwater mesocosms
- Presented at national conference (AAAS and NSF Emerging Researchers National Conference in STEM) and two regional conferences (**LSAMP IINSPIRE Program Annual Conference, Missouri River Institute Symposium)

***Independent Undergraduate Researcher*, Grassland Conservation Lab** *Aug - Dec 2017*
Iowa State University, Ecology, Evolution, and Organismal Biology Department
PI: Dr. Diane Debinski, Supervisor: Nicholas Lyon (MS Graduate)

- Analyzed relationships between plant and arthropod communities in Iowa prairie systems
- Identified prairie plants and arthropods, gathered field samples, and compiled data over the course of a summer internship
- Presented at national conference (National Conference on Undergraduate Research)

***Field Technician Intern*, Grassland Conservation Lab** *May - Aug 2017*
Iowa State University, Ecology, Evolution, and Organismal Biology Department
PI: Dr. Diane Debinski

- Identified and collected data on Midwestern butterfly, bee, and floral prairie plant species *in situ*
- Entered data into Microsoft Access
- Managed and cleaned datasets from previous nine years

ORAL PRESENTATIONS

Goodman, L.M., Miller, R.L. *Modeling a Catastrophic Flooding Event to Improve Water Quality and Environmental Health in Southern Louisiana*. Coastal and Estuarine Research Federation 25th Biennial Conference. Mobile, AL. 11/2019.

Awarded best undergraduate student oral presentation

Goodman, L.M., Santos-Rivera, C., Steen, A., González-Díaz, L., Elmore, K., Vargas, A., Alvarez-Valdivia, A., Whitehead, D., Diaz, E., Argueta, E., Castillo, I., Villa, J., Landeros, J., Carranza, J., Figueroa, N., Bonner, T., Garrin, A., Harding, T. *The Importance of Cultural Empathy within Mentor-Mentee Relationships at a Predominantly White Institution*. Iowa State University Annual Ronald E. McNair Postbaccalaureate Achievement Program Research Symposium. Iowa State University, Ames, IA. 04/2019.

Goodman, L.M., Zimmerman, E., Isenhart, T.M. *Balancing Conservation and Economics to Improve Water Quality in Iowa and Beyond*. Iowa State University 13th Symposium on Undergraduate Research & Creative Expression. Iowa State University, Ames, IA. 04/2019.

Goodman, L.M., Kase, A., Kerby, J. *Effects of Habitat Alteration on False Map Turtles (Graptemys psuedogeographica) in the Missouri River, South Dakota*. AAAS and NSF Emerging Researchers National Conference in STEM. Washington, D.C. 02/2019.

Goodman, L.M., Zimmerman, E., Isenhart, T.M. *Balancing Conservation and Economics to Improve Water Quality in an Agricultural Landscape*. 21st Annual Texas National McNair Scholars Research Conference. University of North Texas, Denton, TX. 02/2019.

Goodman, L.M., Kase, A., Kerby, J. *Damming of the Missouri River and Its Effects on the Threatened False Map Turtle (Graptemys psuedogeographica)*. LSAMP IINSPIRE Program Annual Conference. Iowa State University, Ames, IA. 02/2019.
Awarded 3rd place overall for oral presentations

Goodman, L.M., Kase, A., Kerby, J. *Effects of Habitat Alteration on False Map Turtles (Graptemys psuedogeographica) in the Missouri River, South Dakota*. Iowa One Health Symposium. Iowa State University, Ames, IA. 11/2018.

POSTER PRESENTATIONS

Goodman, L.M., Moore, P., Franz, K., Merrick, L., Milach-Teixeira, A. *Changes in Flood-Carrying Capacity of a Recently Restored Stream System*. Iowa State University Science with Practice Symposium Fall 2019. Iowa State University, Ames, IA. 12/2019.

Goodman, L.M., Miller, R.L. *Modeling a Catastrophic Flooding Event to Improve Water Quality and Environmental Health in Southern Louisiana*. SUS-RURI: Developing a Convergence SUS Agenda for Redesigning the Urban-Rural Interface along the Mississippi River Watershed. Iowa State University, Ames, IA. 08/2019.

Goodman, L.M., Miller, R.L. *Modeling a Catastrophic Flooding Event to Improve Water Quality and Environmental Health in Southern Louisiana*. University of Louisiana Lafayette REU & Summer Undergraduate Research Symposium. University of Louisiana at Lafayette, Lafayette, LA. 07/2019.

Goodman, L.M., Zimmerman, E., Isenhart, T.M. *Balancing Conservation and Economics to Improve Water Quality in Iowa and Beyond*. Iowa State University Annual Ronald E. McNair Postbaccalaureate Achievement Program Research Symposium. Iowa State University, Ames, IA. 04/2019.

Goodman, L.M., Zimmerman, E., Isenhart, T.M. *Balancing Conservation and Economics to Improve Water Quality in Iowa and Beyond*. 14th Annual Research in the Capitol. Iowa State House, Des Moines, IA. 04/2019.

Goodman, L.M., Kase, A., Kerby, J. *Effects of Habitat Alteration on False Map Turtles (Graptemys psuedogeographica) in the Missouri River, South Dakota*. Missouri River Institute Symposium. University of South Dakota, Vermilion, SD. 11/2018.

Goodman, L.M., Kase, A., Kerby, J. *Effects of Habitat Alteration on False Map Turtles (Graptemys psuedogeographica) in the Missouri River, South Dakota*. South Dakota Established Program to Stimulate Competitive Research Undergraduate Research Symposium. Pierre, SD. 07/2018.

Goodman, L.M., Lyon, N., Debinski, D.M. *Flowers Increase Ecosystem Biodiversity in Midwestern Prairies*. It's All About Science Festival. Sanford Research Center, Sioux Falls, SD. 06/2018.

Goodman, L.M., Lyon, N., Debinski, D.M. *Flowers Increase Ecosystem Biodiversity in Midwestern Prairies*. Iowa State University 12th Symposium on Undergraduate Research & Creative Expression. Iowa State University, Ames, IA. 04/2018.

Goodman, L.M., Lyon, N., Debinski, D.M. *Flowers Increase Ecosystem Biodiversity in Midwestern Prairies*. National Conference on Undergraduate Research. University of Central Oklahoma, Edmond, OK. 04/2018.

Goodman, L.M., Lyon, N., Debinski, D.M. *Effects of Flowering Plant Species Richness on Arthropod Order Richness in a Grassland Ecosystem*. Iowa State University Ecology and Evolutionary Biology Graduate Department Research Symposium. Iowa State University, Ames, IA. 02/2018.

TEACHING EXPERIENCE

***Teaching Assistant,* Introduction to Green Engineering (ENGR 3124)** (314 students) *Aug 2020 - present*
Virginia Tech, Instructors: Dr. Durelle Scott, Dr. Sean McGinnis

- Facilitate in-class discussions, assist students with assignments, grade assignments and exams

***Teaching Assistant*, Integrative Undergraduate Research Course (U ST 275X)** *Aug - Dec 2019*
Iowa State University, Instructor: Dr. Svitlana Zbarska

- Provided advice and individually assisted undergraduate students with finding research opportunities by becoming involved in research on campus and through national research programs
- Managed the course's online interface program (Canvas) for two sections consisting of 76 students by generating and grading assignments and quizzes, posting lectures and supplemental material, and responding to students' questions and concerns
- Presented a 50-minute lecture on proper methods for data collection, analysis, storage, management, organization, manipulation, and presentation

***Peer Tutor*, STEM Scholars Program** *Aug 2018 - May 2019*
Iowa State University, Supervisor: Dr. Corey Welch

- Assisted fellow STEM Scholars in academic preparation for Principles of Biology I and II (BIOL 211/212)

***Event Coordinator and Instructor*, Science Bound Program** *Nov 2018*
Iowa State University

- Engaged middle and high school students of color with the field of ecology, and exposed them to degrees and careers in the field
- Designed and instructed interactive problem-solving activities focused around basic ecological concepts
- Shared potential degree and career opportunities in ecology and natural resource management fields

REVEVANT COURSWORK**

- Stream Restoration (BSE 5364)
- Surface-Groundwater Interactions (CEE 5344)
- Advanced Watershed Modeling (BSE 5304G)
- Environmental Monitoring and Sampling (CEE 5724)
- Geospatial Technologies (ENSCI 270X)
- Ecological Methods (A ECL 371/L)

**Additional coursework available upon request

LEADERSHIP AND VOLUNTEER EXPERIENCE

***Lead Undergraduate Research Ambassador*, Undergraduate Research Program** *Aug - Dec 2019*
Undergraduate Research Ambassador *Aug 2018 - May 2019*
Iowa State University, Supervisor: Dr. Svitlana Zbarska

- Organized meetings, assist in agenda planning, and schedule events for the Undergraduate Research Ambassadors team
- Presented at campus events to promote the Undergraduate Research Program and shared other programs that encourage students to pursue research and graduate education
- Interacted and taught incoming and current students, parents, faculty, and academic advisors about undergraduate research opportunities during classes, seminars, and fairs
- Facilitated communications between fellow Ambassadors and program supervisor

***Student Organization Member*, Climate Reality Campus Corps** *Jan 2017 – Dec 2019*
100% Committed Campaign Coordinator *May 2018 - May 2019*
President *May 2017 - May 2018*
Iowa State University, Advisor: Dr. J. Gordon Arbuckle

- Achieved official commitment from Iowa State University President Wendy Wintersteen that the university will begin moving towards carbon neutrality
- Organized the creation of the ISU 100% Renewable Electricity Commitment Campaign and led the campaign for its 16-month duration
- Met with ISU President personally to achieve university commitment to carbon neutrality
- Facilitated collaborations with directors of ISU Department of Sustainability and Facilities Planning and Management, Faculty Senate, Student Government, and other student organization leaders
- Arranged educational, engagement, volunteer, and activist events related to climate change and sustainability
- Organized and moderated faculty and mayoral candidate panel event (100+ attendees)

***Subcommittee Chair*, Student Government Sustainability Committee** *Aug 2018 – May 2019*
Iowa State University

- Partnered with other members of Student Government and student organizations to advance 100% Renewable Electricity Commitment Campaign and other campus sustainability initiatives

***Invited Panelist and Moderator*, STEM Scholars** *Apr 2018*
Iowa State University, Supervisor: Dr. Corey Welch

- Assisted in organizing event titled "Advice for a Successful Transition to College Life"
- Led discussions with a group of 25 Latinx and Native American high school students from the Iowa State University 4-H Maize Program

HONORS AND AWARDS

Virginia Tech Interfaces of Global Change Program Fellow *Dec 2020 - present*
John Lee Pratt Fellowship *Dec 2020*
Davenport Leadership Fellowship *April 2020*
Iowa State University Dean's List *Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019*

Ronald E. McNair Postbaccalaureate Achievement Program	*Apr 2018 - Dec 2019*
Iowa State University STEM Scholars Program	*Jan 2018 - Dec 2019*
Beta Beta Beta National Biological Honors Society	*Sept 2017 - Dec 2019*
ISU Dept of Natural Resource Ecology and Management Senior Contribution Award	*Dec 2019*
ISU College of Agriculture and Life Science Featured Internship Spotlight	*Aug 2019*
David and Candice Arp Animal Ecology Scholarship	*Apr 2019*
Iowa State University Live Green! Excellence in Sustainability Award	*Feb 2019*
J.N. "Ding" Darling, Iowa National Heritage Scholarship	*Apr 2018*
Iowa City Sportsman's Club Loren R. Forbes Memorial Scholarship	*Apr 2018*
Phi Theta Kappa International Honors Society	*Jan - Dec 2016*
Des Moines Area Community College Foundation Scholarship	*Dec 2016*
Des Moines Area Community College Dean's List	*Fall 2015, Spring 2016*

PROFESSIONAL DEVELOPMENT

Climate Reality International Leadership Training Conference, Los Angeles, CA *Aug 2018*

- Received full scholarship for travel, lodging, and conference fee due to climate action leadership and achievements at Iowa State University
- Trained for three days by political representatives, scientists, professional communicators, environmental activists, community organizers, among others to become a leader in my community by shaping public opinion, influencing public policy, and inspiring others to act and fight for solutions to mitigate and adapt to climate change

PROFESSIONAL SOCIETIES

American Geophysical Union	*Oct 2020 - present*
Coastal and Estuarine Research Federation	*Oct 2019 - present*
Ecological Society of America	*Jan 2019 - present*
Society for Advancement of Chicanos/Hispanics & Native Americans in Science	*Mar 2018 - present*

SKILLS

- Software programs (Advanced): R, HEC-RAS, QGIS, Google Earth Pro
- Software programs (Intermediate): MATLAB, ArcGIS
- Software programs (Novice): Python, MARK, Vortex, GNSS, MultiSpec
- Non-native language (Elementary): Spanish
- Substantial experience towing trailers, driving boats (inboard and outboard engines), trucks, and four-wheel drive, all-terrain, and utility vehicles
- Considerable experience using power tools
- Mechanical experience (minor) working on boat engines and other vehicle parts

REFERENCES

Dr. Robert Miller	**Dr. Durelle Scott**	**Dr. Peter Moore**
Assistant Professor	Associate Professor	Assistant Professor
Civil Engineering Department	Biological Systems Engineering Department	Natural Resource Ecology and Management Department
University of Louisiana at Lafayette	Virginia Polytechnic Institute and State University	Iowa State University
254M Madison Hall	554 Human and Agricultural Biosciences Building I	642 Science II Hall
Lafayette, Louisiana 70504	Blacksburg, Virginia 24060	Ames, Iowa 50011
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