

CHARLES BENFER

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EDUCATION

BA MATHEMATICS	Mount Saint Mary College, May 2021
MS EDUCATION	Mount Saint Mary College, May 2021
MS DATA SCIENCE AND ENGINEERING	Auburn University, Expected May 2025

RESEARCH INTERESTS

General research interests lie in predictive analyses using both interpretable and non-interpretable models, machine learning, and artificial intelligence.

RELEVANT PROJECTS

Fall 2024 - Present	<p>PITCHER EVALUATION, AUBURN MEN'S BASEBALL TEAM</p> <p>Worked to improve the scouting process for Auburn Men's Baseball through the process of advanced statistical modeling for metrics including but not limited to Stuff+, Run Value, xBA, etc. Influenced pitcher training plans based on relevant statistics. Built custom web apps to present results in a meaningful way to non-mathematical parties.</p>
Fall 2024	<p>PREDICTING VARIOUS PHENOTYPIC CORN FEATURES BASED ON ENVIRONMENTAL AND GENETIC DATA, BAYER CORP.</p> <p>Developed custom predictive models to accurately determine various characteristics of corn plants. This information can inform corn breeders on the genetic lines that should be used for optimal corn production, as well as optimal environmental features, such as soil content, for corn production.</p>
Summer 2024	<p>PREDICTING CHICKEN BACTERIAL RESISTANCE, AUBURN COLLEGE OF VET MEDICINE</p> <p>Modeled bacterial resistance based on several factors, specifically antibiotic treatment for various chickens across Canada.</p>
Fall 2023	<p>PREDICTING BASEBALL WIN PERCENTAGE, LINEAR REGRESSION COURSE FINAL PROJECT</p> <p>Used relevant information to predict a baseball team's win percentage for a given year. Further, investigated the effects of the pitch clock, base size, and various other factors on stolen base numbers, and the resulting effect on team win percentage, and important statistics for predicting win percentage.</p>

SKILLS

Proficiency in Python, R, SQL. Ability to apply machine learning and artificial intelligence, create, maintain, and query relational databases developed through coursework and research projects. Intermediate level of Spanish speaking obtained through coursework while receiving a minor in Hispanic Studies. Excellent public speaking and interpersonal skills developed through years of teaching at the middle school, high school and collegiate level, along with many presentations with company representatives for research projects.

COLLEGIATE TEACHING EXPERIENCE

Fall 2023 - Fall 2024	MATH 1000 INSTRUCTOR OF RECORD, AUBURN UNIVERSITY A course designed for incoming freshmen who perform poorly on math entrance exam, where essential study skills and test-taking strategies are implemented along side college-algebra level math to set students up for success in later calculus courses.
Summer 2023	CALCULUS II INSTRUCTOR OF RECORD, AUBURN UNIVERSITY Transformed a full 15-week curriculum into a 12-week curriculum. Due to smaller class size, worked closely with students in a project-based curriculum to develop a deep understanding of Calc 2 concepts.
Fall 2022-Spring 2023	DIFFERENTIAL EQUATIONS TEACHING ASSISTANT, AUBURN UNIVERSITY Worked closely with students that struggled with the topics presented by the professor. Observed lectures and determined more intuitive methods for describing complex mathematics to instill better understanding.
Spring 2022	FOUNDATION OF MATHEMATICS, HUDSON LINK A surface level on all kinds of mathematics taught to incarcerated individuals. Touched on topics such as basic algebra, all the way to probability theory and basic statistics.
Fall 2021-Spring 2022	ELEMENTARY FUNCTIONS, MOUNT SAINT MARY COLLEGE Introduced undergraduate students to more advanced mathematics through the eyes of functions. Built the necessary skills for students to advance into pre-calculus with confidence.

EMPLOYMENT HISTORY

August 2023 -Present	123 PHD PROGRAM BISHOP DUNN MEMORIAL SCHOOL
August 2022 -Present	GRADUATE TEACHING ASSISTANT AUBURN UNIVERSITY
January 2022 -May 2022	MATHEMATICS TEACHER HUDSON LINK FOR HIGHER EDUCATION IN PRISONS
July 2021 -May 2022	ADJUNCT PROFESSOR OF MATHEMATICS MOUNT SAINT MARY COLLEGE
July 2021 -June 2022	7TH AND 8TH GRADE MATH TEACHER BISHOP DUNN MEMORIAL SCHOOL
September 2019 -July 2021	SOCIAL MEDIA MANAGER AND VOLUNTEER BASEBALL MIRACLES
July 2018 -June 2020	SUBSTITUTE TEACHER, MONITOR BISHOP DUNN MEMORIAL SCHOOL
July 2018 -June 2020	SUBSTITUTE TEACHER MARLBORO CENTRAL SCHOOL DISTRICT

PROFESSIONAL AFFILIATIONS

2023-Present	American Statistical Association
2022-Present	American Mathematical Society
2021-Present	New York State Association of Math Teacher Educators
2021-Present	Mathematical Association of America
2020-Present	Sigma Delta Pi, Hispanic Studies Honors Society
2020-Present	Alpha Chi, Academic Honors Society
2019-Present	Kappa Delta Pi, Education Honors Society
2019-Present	Kappa Mu Epsilon, Mathematics Honors Society
2018-Present	National Council for Teachers of Mathematics

AWARDS AND HONORS

May 2021	JAMES PRATT EXCELLENCE IN STUDENT TEACHING AWARD Presented to the student who performed in an outstanding manner during the semester of their student teaching at the adolescent level. The recipient is recommended by their student teaching supervisor and then voted on by the education department.
March 2019	MOUNT SAINT MARY COLLEGE AQUINAS SCHOLAR Awarded to Juniors and Seniors at Mount Saint Mary College who have achieved a GPA of 3.6 or higher, and were recommended and approved by the division of their academic major.

PRESENTATIONS

December 2021- Benfer, C, Benfer, N, Norman, R. ““I started this whole read to younger kids thing and I read more”: Repeated Reading for Authentic Purposes” Literacy Research Association 71st Annual Conference.

May 2021- Benfer, Charles. “A Deep Dive Into the NYS Math Regents Exams.” Mount Saint Mary College Honors Research Symposium.

September 2020- Benfer, Charles. “Using Math Trails to Bring Math to Life” Mount Saint Mary College Summer Undergraduate Research Experience.

November 2019- Benfer, Charles et. al. “Lighting the Fire: Area Educators and Their Students” Mount Saint Mary College Center for Adolescent Research and Development (CARD) Conference.

September 2019- Benfer, C, Bosco, V. “Bishop Dunn Memorial School Sensory Garden Math Trails (And Beyond!)” Mount Saint Mary College Summer Undergraduate Research Experience.

May 2019- Benfer, C, Reinhardt, S. “Connecting Graph Theory, Linear Algebra and Probability Using Markov Chains” Mount Saint Mary College Honors Research Symposium.

April 2019- Benfer, C “Bishop Dunn Memorial School Sensory Math Garden (Adapted Presentation)” Mount Saint Mary College Kappa Mu Epsilon Induction Ceremony.

March 2019- Benfer, C, Benfer, N. “(Mathematics + Literacy + Science) X Nature = Sensory Garden: An Interdisciplinary Kindness Equation” Mount Saint Mary College Collaborative for Equity in Literacy Learning (CELL) Conference.

September 2018- Benfer, C “Bishop Dunn Memorial School Sensory Math Garden” Mount Saint Mary College Summer Undergraduate Research Experience.