Ryan S. Holzhauer

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Personal Information

Citizenship: American
Born: 1/17/98 Denville, NJ, USA

Education

2020 - **MS in Applied Mathematics**
Colorado School of Mines, Golden, CO

2016 - 2020 **BA in Mathematics, Minor in Biology**
Binghamton University, Binghamton, NY
GPA: 3.50

Fall 2019 **Semester Abroad**
University of Edinburgh, Edinburgh, Scotland

2016 **High School Diploma**
Newton High School, Newton, NJ

Research Experience

2019 **Mathematical Ecology REU**
Departments of Mathematics and Biology, University of Wisconsin-La Crosse

- Worked in a team of four students under Dr. James Peirce and Dr. Gregory Sandland
  - *Research funded by the National Science Foundation*
- Performed a study on cercarial dermatitis outbreaks in the midwestern US
  - Developed a novel SIR model for the biological system
  - Estimated parameter values using machine learning techniques
  - Analyzed the efficacy of potential treatment options
  - Drafted a scientific paper (soon to be submitted for publishing)
- Presented findings from the study
  Slideshow: Mayo Clinic biostatistics department
  Poster: 2019 UWL summer research symposium
  2020 Joint Math Meetings*
  **Recognized for giving an outstanding poster presentation by the Mathematical Association of America*

2018 **Research Assistant**
Department of Ecology, Binghamton University

- Worked under Dr. Thomas Powell and Phoebe Deneen
- Assisted in dissertation research project focusing on the effect of climate change on the metabolic activity of fruit flies
    - Performed various experiments
    - Organized data

2016-2017 **Freshman Research Immersion Program**

Biofilms Cohort, Binghamton University

- Worked in a team of five students under the guidance of Dr. Caitlin Light and Dr. Karin Sauer
    - *Research funded by Howard Hughes Medical Institute*
- Performed a comparative analysis of particular protein homologs found in biofilm-producing bacteria
    - Assessed function of protein using various gene knockouts
    - Analyzed sequence data for the different homologs using online databases
- Presented findings from the study
  Poster: 2017 Binghamton University FRI Research Symposium

Teaching Experience

2019 **Undergraduate Peer Mentor**

FRI Program, Biofilms Cohort, Binghamton University

- Taught students laboratory techniques pertaining to microbiology
- Helped a group of students formulate a research proposal
- Attended weekly meetings with other peer mentors to troubleshoot problems and prepare lessons

Honors and Awards

2016 - 2020	Scholarship of Excellence, Binghamton University
2016, 2017, 2019	Dean's List, Binghamton University
2018	Pi Mu Epsilon National Math Honors Society
2015	Eagle Scout

Relevant Courses

Mathematics

Calculus I/II/III, Linear Algebra, Number Systems, Complex Analysis, Dynamical Systems, Combinatorics, Graph Theory, Abstract Algebra, Mathematical Biology, Probability Theory, Statistical Analysis

Biology

Intro Biology, Cell Biology, Microbiology, Transmission/Population Genetics, Mechanisms of Evolution, Immunology

Computer Science

Data Science for Ecologists & Environmental Scientists

References

Caitlin Light

Research educator for FRI program, Binghamton University, clight@binghamton.edu

Gregory Sandland

Professor of Biology, University of Wisconsin-La Crosse, gsandland@uwlax.edu

Gang Zhou

Assistant Professor of Mathematics, Binghamton University, gzhou@math.binghamton.edu