Jack DeGroot

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SUMMARY

As a PhD student with a strong background in statistics and probability, I am conducting research on the use of classification models in machine learning to improve the accuracy of predicting political election outcomes. I am deeply committed to public service and am excited to learn more about New Hampshire's State Government.

EDUCATION

University of New Hampshire, Durham, NH — August 22, 2021- May 21, 2026

- PhD. Statistics — GPA: 3.9
- Fields: Machine Learning, Political Science

Marywood University, Scranton, PA — August 22, 2017 - May 19, 2021

- Bachelor of Science Mathematics and Finance — GPA: 3.5
- First Generation College Student
- Tama Medal for Excellence in Mathematical Studies Runner Up
- Dean's List 2017-2021

WORK EXPEREIENCE

Adjunct Professor, University of New Hampshire**,** Durham, NH — May 2022 – July 2022

- Taught MATH 644: Statistics for Engineers and Scientists to a class of ~20 junior and senior students in two weekly seminars that consisted of lectures and lab sessions.
- Introduced students to Design of Experiments, Exploratory Data Analysis, Probability and Probability Distributions, Statistical Inference including Hypothesis Testing, regression and correlation, and ANOVA.

Teaching Assistant, University of New Hampshire**,** Durham, NH — August 2021 - Current

- Taught MATH 418: Precalculus & MATH 424B: Calculus for Life Sciences to three classes of ~ 20 students in two weekly recitations for three semesters
- Created innovative mathematical exercises to increase student interaction, engagement, and retention in Precalculus and Calculus course material.

RESEARCH EXPERIENCE

A Mathematical Model for Forecasting the Spread of Covid-19 in Pennsylvania June 2020 - July 2021

- Worked with Cody Dosch, Heather Kwolek, and faculty advisor Dr.Craig Johnson to create a Susceptible, Vaccinated, Exposed, Infected, and Removed (SVEIR) mathematical model for the spread of Covid-19 that involved nonlinear systems of equations to help foresee the virus's spread in a set population.
- Identified preventative measures Marywood University should implement, methods of virus transmission, and proper precautions when a student tests positive for Covid-19 while living on Marywood's campus.

PRESENTATIONS

- Rose-Hulman Undergraduate Mathematics Conference, A Mathematical Model for Forecasting the Spread of Covid-19 in Pennsylvania, (Oral Presentation), April 23, 2021
- Annual Meeting of the Pennsylvania Academy of Science, A Mathematical Model for Forecasting the Spread of Covid-19 in Pennsylvania, (Oral Presentation), April 10, 2021
- Moravian College Student Mathematics Conference, A Mathematical Model for Forecasting the Spread of Covid-19 in Pennsylvania, (Oral Presentation), February 13, 2021

TECHNICAL SKILLS

- *Computer Languages:* R, Python, SAS, JMP, SQL, Excel
- *Tools:* ggplot2, dplyr, tidyr, knitr, Pandas, Numpy, Keras, Tensorflow
- *Skills:* Parametric & Non-Parametric Modeling, Times Series, Linear Regression, Machine Learning