jessemurray.com
github.com/jessebmurray

Jesse Murray

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Education

Drew University — **Madison, NJ** — **Aug 2016 – May 2020**
- Physics major, Mathematics minor (GPA: 4.00)
- GRE: 169/170 Quantitative, 165/170 Verbal, 5/6 Analytical Writing

The Juilliard School — **New York, NY** — **Aug 2015 – May 2016**
- Cello Program

Research Experience

Research Team Lead — **Drew University** — **May 2019 – Present**
- Obtained statistically significant results about how people gradually arrive at a solution to a word puzzle (anagram) by designing and running a highly stimulus-manipulated eye-tracking experiment (N=29) and applying statistical tests to the data. Cleaned, prepared, and analyzed the data of 1.8 million rows and 38 columns with pandas, and implemented machine learning techniques. Currently leading a six-member research team advised by Dr. Minjoon Kouh. Presentation at the University of Scranton Brain and Behavior Conference on March 7th and undergraduate journal submission later this semester. Poster can be viewed on jessemurray.com.

Independent Researcher — **Drew University** — **Nov 2019 – Present**
- Created a statistical model of normal population distributions reproducing with regression towards the mean. R^2=.92 and .93 with intergenerational education and income mobility. Calculus involved model based on the linear regression equation of polygenic inheritance, simulated in python. Recently began collaboration with Dr. Minjoon Kouh to edit a paper for undergraduate journal submission. Notebook can be viewed on jessemurray.com.

Research Intern — **Drew University** — **May 2017 – Aug 2017**
- Studied adsorption rates of the atmospheric gas, Pinene, onto dust and sand samples through infrared spectroscopy under varying humidity and temperature conditions. Simulated molecules with Gaussian and analyzed data with IGOR Pro.

Skills

- Statistical analysis, simulation, and mathematical modeling projects (jessemurray.com)
- Python, R, MATLAB, SQL, C, HTML
- Expertise in NumPy, SciPy, Pandas, Sklearn, Matplotlib, Seaborn libraries
- Calculus-based statistics, probability, multivariable calculus, linear algebra, differential equations
- Cello, piano, music theory, perfect pitch composition

Additional Experience

University Tutor — **Drew University** — **Jan 2017 – Jan 2020**
- Tutored undergraduate students in physics I and II, calculus I, II and III, pre-calculus, statistics, astronomy, biology, chemistry, organic chemistry. Led drop-ins for math-related courses, explained problems to large groups of students.

President of Math Club — **Drew University** — **Jan 2019 – Jan 2020**
- Completely revamped the club, put up posters around the school of intriguing math problems and began weekly meetings to solve those problems and lead discussions. Created a professor talk series in which quantitative professors give math-related lectures. Redesigned the Constitution and instituted ranked-choice voting.

Research and Teaching Assistant — **Drew University** — **Jul 2019 – Aug 2019**
- Helped students at the New Jersey Governor's School in the Sciences complete a project about implementing machine learning with iRobot hardware for human detection. Graded and tutored students in special relativity class.

Emergency Department Intern — **Morristown Medical Center** — **Sep 2018 – Dec 2018**
- Assisted medical staff with patient intake and evaluation.

Awards, Scholarships, Honors

Arnold S. Boxer Memorial Prize in Physics: Awarded in Spring 2019 from the Drew University Physics Department. **Sigma Pi Sigma:** Inducted in Spring 2019. **Phi Beta Kappa:** Inducted in Spring 2018. **Weddell Family Scholarship:** Awarded from Drew University Physics Department in Spring 2018. **John F. Ollom Prize in Physics:** Awarded from Drew University Physics Department in Spring 2017. **Dean's Transfer Scholarship:** Awarded from Drew University in Fall 2016.