Daniel Brumley

4416 Steven Drive
Edmond, OK, 73013
(405) 600-8728 · danielbrumley90@gmail.com
LinkedIn: www.linkedin.com/in/danielbrumley90
Personal Webpage: https://danielbrumley90.github.io/

EDUCATION

8/18-7/19 Completed coursework toward **PhD in Applied Mathematics**
University of Delaware, Newark, DE
GPA: 3.45

Passed first tier preliminary exams in Analysis and Vector Spaces in February 2019.

1/17-5/18 **M.S. with Honors in Applied Mathematical Science**
University of Central Oklahoma, Edmond, OK
GPA: 4.00

Thesis: *Existence Results for a Class of Even-Order Boundary Value Problems*
Thesis Advisor: Dr. Britney Hopkins

Passed qualifying exams in Advanced Calculus, Numerical Analysis, Operations Research, and Computer Applications in Statistics in April 2018.

8/16-12/16 Completed coursework toward **M.S. in Data Science and Analytics**
University of Oklahoma, Norman, OK

Note: Credits transferred to M.S. in Applied Mathematical Science (see above).

8/10-5/16 **B.S. in Mathematics, Minor in Computer Science**
University of Central Oklahoma, Edmond, OK
GPA: 3.40

RESEARCH EXPERIENCE

6/19-7/19 **UNIDEL Summer Research Assistant**
Department of Mathematical Sciences, University of Delaware
Advisor: Dr. Pak-Wing Fok

- Investigated the stochastic differential equations and corresponding PDEs governing biophysical processes related to protein folding under Smoluchowski and Klein-Kramer dynamics
- Funded via $3600 UNIDEL Summer Research Grant

8/17-5/18 **Research Assistant** (unpaid)
Department of Mathematics and Statistics, University of Central Oklahoma
Advisor: Dr. Tyler Cook

- Developed simulations to assess the efficacy of a new methodological approach that utilized guided regularized random forests to identify important genes and genetic pathways when modeling for a particular biological outcome using microarray data
- Wrote simulations in R making use of the BUDDY supercomputer

1/16-5/16 **Project STLR Research Assistant**
Center for Transformative Learning, University of Central Oklahoma
Advisor: Dr. Brad Paynter

- Programmed an algebra assessment in WeBWorK for the Department of Mathematics to gauge readiness of incoming Calculus I students
- Implemented assessment via Perl and the Problem Generation Markup Language (PGML)
- Funded for 10 hours of work per week through the Center for Transformative Learning

8/15-5/16 **Research Assistant**
College of Mathematics and Science, University of Central Oklahoma
Advisor: Dr. Britney Hopkins, Dr. Kristi Karber

- Worked with advisors and a team of four tutors to provide weekly free ACT prep to low-income students from Douglass Mid-High School in Oklahoma City
- Created and evaluated practice tests to monitor student progress
- Funded for 10 hours of work per week through the College of Mathematics and Science

1/15-5/16 **Research Assistant** (unpaid)
Department of Mathematics and Statistics, University of Central Oklahoma
Advisors: Dr. Michael Fulkerson, Dr. Britney Hopkins, Dr. Kristi Karber, Dr. Thomas Milligan

- Used functional analysis techniques to demonstrate existence of solutions to multiple classes of differential equations

TEACHING EXPERIENCE

8/18-7/19 **Teaching Assistant**
Department of Mathematical Sciences, University of Delaware

- Planned and led discussion sessions for multiple sections of Calculus 1
- Wrote and graded discussion quizzes and weekly group work
- Proctored exams and assisted in the grading of midterm and final exams

8/12-5/18 **Private Tutor**

- Privately tutored students of all levels in the following areas: mathematics (elementary to high school mathematics, calculus, business calculus, differential equations, and linear algebra); statistics (mathematical statistics, engineering statistics); physics (mathematical physics); general test prep (ACT, SAT, OCCT)

1/17-5/18 **Teaching Assistant**
Department of Mathematics and Statistics, University of Central Oklahoma

- Graded papers for several sections of Foundations of Geometry and Measurement, proctored exams, and tutored students in the Mathematics Lab

8/14-5/16 **Supplemental Instructor**
College of Mathematics and Science, University of Central Oklahoma

- Attended all lectures of an assigned Calculus 1 class
- Planned and led two 1-hour Supplemental Instruction sessions each week to solidify the students' understanding of Calculus concepts
- Maintained records of student attendance and session goals and met weekly with supervisors

ADDITIONAL EXPERIENCE

6/16-9/16 **Software Engineer**
Boeing

- Maintained and updated software for surveillance aircraft platforms that enable the detection, identification, and tracking of airborne threats

5/10-7/14 **Assistant Manager**
Murphy USA

- Supported the Manager with the daily operations and maintenance of the store
- Trained new employees

PUBLICATIONS

2017 O. Bennett, **D. Brumley**, B. Hopkins, K. Karber, and T. Milligan, The Multiplicity of Solutions for a System of Second Order Differential Equations, *Involve: A Journal of Mathematics*, Vol. 10(1).

2016 **D. Brumley**, B. Hopkins, K. Karber, and T. Milligan, The Existence of Solutions of Classes of Even-Order Differential Equations, *Advances in Dynamical Systems and Applications*, Vol. 11(1).

2016 **D. Brumley**, M. Fulkerson, B. Hopkins, and K. Karber, Existence of Positive Solutions for a Class of Fourth Order Boundary Value Problems, *International Journal of Differential Equations and Applications*, Vol. 15(2).

PRESENTATIONS

2018 **D. Brumley**, S. Chakraborty, and T. Cook. *Pathway and Gene Selection with Guided Regularized Random Forests*. Contributed talk presented by Tyler Cook. Contributed Session: 2018 ICSA Applied Statistics Symposium. New Brunswick, NJ.

2018 **D. Brumley.** *Existence Results for a Class of Even-Order Boundary Value Problems*. Public thesis defense. University of Central Oklahoma. Edmond, OK.

2018 **D. Brumley.** *The Existence of Solutions to an Even-Order Boundary Value Problem.* Poster presentation. Oklahoma Research Day. Enid, OK.

2018 **D. Brumley.** *The Existence of Solutions to an Even-Order Boundary Value Problem.* Contributed talk. AMS Contributed Paper Session on Differential Equations: 2018 Joint Mathematics Meetings. San Diego, California.

2018 **D. Brumley.** *Pathway and Gene Selection with Guided Regularized Random Forests.* Contributed talk. MAA General Contributed Paper Session on Probability and Statistics: 2018 Joint Mathematics Meetings. San Diego, California.

2017 **D. Brumley.** *Random Forest Visualization with Breast Cancer Data.* Presentation. Center for Research and Education in Interdisciplinary Computation (CREIC) Symposium. Edmond, OK.

2016 **D. Brumley**. *A Boundary Value Problem of Sturm-Liouville Type*. Contributed talk. OK-AR MAA Meeting. Conway, AR.

2016 **D. Brumley** and J. Lawrence. *The CCA Urban ACT Prep Program*. Poster presentation. Oklahoma Research Day. Tahlequah, OK.

2016 **D. Brumley**. *The Existence of Solutions for a Class of Even Order Differential Equations.* Poster presentation. Oklahoma Research Day. Tahlequah, OK.

2016 **D. Brumley**. *The Existence of Solutions to an Even Order Right Focal Boundary Value Problem*. Poster presentation. 2016 Joint Mathematics Meetings. Seattle, WA.

2013 **D. Brumley**. *The Problem of Induction.* Talk. University of Central Oklahoma Liberal Arts Symposium. Edmond, OK.

GRANTS, AWARDS, AND HONORS

2019	*UNIDEL Summer Research Grant*
2018	*MAA Student Travel Grant*
2017	UCO *Research, Creative and Scholarly Activities Presentation Grant*
2017	*CREIC Symposium – Best Visualization Award*
2016	UCO *Department of Mathematics and Statistics Outstanding Graduating Senior Award*
2016	UCO *Department of Mathematics and Statistics Student Achievement Award*
2016	*OK-AR MAA R.B Deal Undergraduate Oral Presentation Award (1st Place)*
2016	*MAA Student Travel Grant*
Multiple Semesters	*Dean's Honor Roll*, *President's Honor Roll*

TECHNICAL SKILLS

MICROSOFT OFFICE SUITE	Excel, VBA, Word, PowerPoint, Access
PROGRAMMING SKILLS	R, C++, Java, SQL, LaTex
OPERATING SYSTEMS	OS X, Windows