

David McMorris

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| CONTACT INFORMATION | Department of Mathematics Luter Hall 340 Christopher Newport University One Avenue of the Arts Newport News, VA 23606 | david.mcmorris@cnu.edu https://davidmcmorris.github.io/ |
| RESEARCH INTERESTS | Mathematical biology and scientific computing, applications of control theory to plant life history and ecology. | |
| EDUCATION | University of Nebraska-Lincoln | |
| | Ph.D. in Mathematics | August 2020 |
| | Advisor: Glenn Ledder | |
| | Dissertation: <i>Optimal Allocation of Two Resources in Annual Plants</i> | |
| | M.S. in Mathematics | May 2016 |
| | Hope College | |
| | B.S. in Mathematics | May 2014 |
| | <i>Magna Cum Laude</i> | |
| | Advisor: Brian Yurk | |
| APPOINTMENTS | Adjunct , Christopher Newport University | August 2021 - present |
| | Graduate Teaching Assistant , UNL | 2014 - 2020 |
| TEACHING EXPERIENCE | Instructor of Record | |
| | Christopher Newport University | |
| | Math 130: Precalculus | Spring 2022 |
| | Math 135: Calculus for Business and Social Sciences | Fall 2021, Spring 2022 |
| | University of Nebraska-Lincoln | |
| | Math 302: Math Modeling | Spring 2017, 2019, 2020 |
| | A course for pre-service elementary teachers. | |
| | Math 104: Applied Calculus (~ 110 students) | Fall 2019 |
| | Math 106: Calculus I | Fall 2018 |
| | Part of the WHT Scholars Learning Community for first-generation students | |
| | Math 203: Contemporary Mathematics | Spring 2018 |
| | Math 301: Geometry Matters | Summer 2017 |
| | A course for pre-service elementary teachers. | |
| | Math 103: College Algebra & Trigonometry | Fall 2016, 2017 |
| | Part of the WHT Scholars Learning Community for first-generation students | |
| | Math 101: College Algebra | Fall 2015, Spring 2016, Summer 2016 |

Teaching Assistant

University of Nebraska-Lincoln

Math 107: Calculus II Recitation

Spring 2015

Math 106: Calculus I Recitation

Fall 2014, Summer 2015

Qualifying Exam Workshops

University of Nebraska-Lincoln

Organized workshops for first-year graduate students to prepare for qualifying exams

PDE and Applied Math Workshop

May 2018

ODE and Applied Math Workshop

May 2017

Grader

University of Nebraska-Lincoln

Math 489/889: Stochastic Processes

Fall 2018

Math 831: Partial Differential Equations

Fall 2017

Math 842: Methods in Applied Mathematics

Fall 2016

Math 104: Applied Calculus

Spring 2015

PUBLICATIONS AND PREPRINTS

1. D. McMorris and G. Ledder, *Resource Allocation in Annual Plants*. (submitted)
bioRxiv 2021.04.19.440512.
2. D. McMorris, P. Pearson, and B. Yurk, *A modified wavelet method for identifying transient features in time signals with applications to bean beetle maturation*.
Involve, a Journal of Mathematics, **10(1)** (2016), 21-42.

PRESENTATIONS

† DENOTES INVITED TALK

- Optimal Allocation of Two Resources in Annual Plants*
(50 min)
UNL, Dissertation Defense July 2020
- † *Plant Life History and Optimal Control*
(20 min)
Nebraska Wesleyan University Math Club November 2019
- † *Investigating Plant Growth Through Mathematical Biology*
(50 min)
Nebraska Wesleyan University STEM Seminar March 2019
- † *Using Optimal Control Theory to Model Resource Allocation in Annual Plants*
(50 min)
Creighton University Department of Mathematics Colloquium November 2018
- An Optimal Control Approach to Resource Allocation in Annual Plants*
(50 min)
UNL MathBio Seminar October 2018
- An Application of Optimal Control to Resource Allocation in Annual Plants*
(20 min)
Midwest Mathematical Biology Conference, UW - La Crosse May 2018
- † *Optimal Control Theory and Math Biology*
(10 min)
Nebraska Wesleyan University Math Club October 2017

SERVICE

MCM/ICM,

Consortium for Mathematics and Its Applications

Spring 2021, 2022

Worked as a triage judge to grade papers as part of the Interdisciplinary Contest in Modeling and Mathematical Contest in Modeling, international modeling contests which challenge students to engage with open-ended problems.

Referee, Letters in Biomathematics

Since 2021

New Student Enrollment, UNL

Summer 2019, 2020

Worked with academic advisors and incoming freshmen to determine their math placement based on their backgrounds and major requirements.

Nebraska Conference for Undergraduate Women in Mathematics,

Department of Mathematics, UNL

January 2019, 2020

NCUWM is an annual conference open to undergraduate women mathematicians.

I volunteered to assemble informational packets and register conference attendees.

Dean Search, College of Arts and Sciences, UNL

January 2019

Served on a panel of 10 students who met with and evaluated each candidate.

Math Day, Department of Mathematics, UNL

November 2014 - 2019

Proctored/coordinated throughout a day of high school mathematics competitions for approximately 1400 students across Nebraska.