

Frances E. Dean

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EDUCATION

University of Washington • Seattle, WA	Present
Graduate Non-Matriculated Student	
Williams College • Williamstown, MA	Class of 2019
BA in Mathematics • <i>Cum laude</i>	

RELEVANT COURSEWORK

WILLIAMS COLLEGE:

Science: Biology 101: The Cell, Biology 102: The Organism, Neuroscience, Introduction to Psychology, Social Psychology, Introduction to Mechanics and Waves, Philosophy and Modern Physics, Principles of Modern Chemistry, Introduction to Computer Science, Data Structures & Advanced Programming

Mathematics: Multivariable Calculus, Linear Algebra, Abstract Algebra, Protecting Information: Applications of Abstract Algebra and Quantum Physics, Algebraic Number Theory, Applied Real Analysis, Introduction to Statistical Modeling, Introduction to Python Programming, Galois Theory, Differential Equations, Dance of the Primes, Topology, Probability, Algebraic Combinatorics

UNIVERSITY OF WASHINGTON:

Applied Mathematics: Applied Biostatistics I and II, Mathematical Modeling of Cancer, Physical Applications of Group Theory

Global Health: Measuring the Global Burden of Disease of TB and HIV/AIDS

WORK EXPERIENCE

Institute for Health Metrics and Evaluation , Post Bachelor Fellow	Fall 2019 – Present
Contribute to the landmark Global Burden of Disease study modeling the morbidity and mortality of neoplasms	
Assist in data formatting and processing and utilize and write statistical software to create estimates	
Design methods to improve estimation of mortality to incidence ratios, survival curves, and model new diseases	
Williams College Mathematics , Teaching Assistant	Fall 2017 – Spring 2019
Hosted weekly sessions answering student questions and tutoring undergraduates in Linear Algebra, Abstract Algebra	
Managed the entering of student grades, updated homework solutions, and graded problem sets with a team of T.A.'s	
SMALL REU in Mathematics , Undergraduate Researcher	June 2018 - August 2018
Investigated and created tools for computing the gonality of combinatorial graphs as defined via tropical algebraic curves	

ACTIVITIES

Math Matters Seattle , Test Prep Instructor	September 2020 - Present
Tutor and mentor students from low-income backgrounds in the Seattle area weekly to set them up for collegiate success	
Student Advisory Board of Math & Statistics , Vice President	August 2018 – May 2019
Facilitated informational, mentorship, and social events and encouraged engagement by producing department stickers	
Assisted in the hiring of new mathematics and statistics faculty at Williams College	
Williams College Varsity Swim Team , Member	November 2015 – March 2019
Qualified for NCAA Division III Championship: 2016	
CSCAA Scholar All-American: 2016, Honorable Mention: 2017	
NESCAC All-Academic Honoree: 2016, 2017, 2018, 2019	
Lehman Community Engagement , President	June 2016 – May 2019
Organized, participated, and oversaw service trips and outings to engage the members of the greater Williams community	
As President (2018-19): led weekly board meetings, oversaw communications, and facilitated group projects and structure	
As Secretary (2017): took meeting minutes and sent out engaging weekly emails promoting events	

PRESENTATIONS

Cancer Survival Estimation in the GBD Study, <i>IHME Science Seminar Series</i>	September 9, 2020
Graphs of Gonality Three, <i>Joint Mathematics Meetings</i>	January 19, 2019
Chip Firing Games & Gonality, <i>Williams College</i>	October 1, 2018
Computing Graph Gonality with Brambles, <i>MAA MathFest</i>	August 2, 2018

PUBLICATIONS

Global Burden of Disease Study 2019 The Lancet, Vol 396 (10258), DOI: 10.1016/S0140-6736(20)30925-9	October 2020
Treewidth and gonality of glued grid graphs, I. Aidun et. al Discrete Applied Mathematics, Vol 279, DOI: 10.1016/j.dam.2019.10.024	May 2020
Tired: A Reflection on Asceticism and the Value of Quantitative Assessment Journal of Humanistic Mathematics, DOI: 10.5642/jhummath.202001.19	January 2020
Graphs of gonality 3, I. Aidun et. al Journal of Algebraic Combinatorics, Vol 2 (2019), DOI: 10.5802/alco.80	December 2019
Gonality sequences of graphs, I. Aidun et. al In review, arXiv:2002.07753v1	2019

ADDITIONAL SKILLS & CERTIFICATES

Computer

Proficient in R, LaTex, Beamer, Python, Mathematica, Stata, SQL

Teaching

Instruction Support Program Training in Teaching, IHME

September 2020

SCHOLARSHIPS & AWARDS

Williams College Department of Mathematics Beaver Award Given to a senior to recognize their contributions to the mathematical community	Awarded: May 2019
Lola G. Duff and William H. Duff, II Scholarship A merit scholarship for full-time pursuit of a bachelor's degree to students of Allegheny County of Protestant faith	Awarded: September 2015 – May 2019
Brown Book Award , <i>Thinking the Twentieth Century</i> by Tony Judt and Timothy Snyder Awarded to high school students who demonstrates excellent communication skills by the Brown Alumni Association	Awarded: May 2014

PERSONAL

I enjoy competitive swimming, sailing, yoga, biking, running, hiking, tennis, and golf.