

# Robert Dougherty-Bliss

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## Research interests

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Experimental mathematics; symbolic-numeric computation; difference equations; combinatorics; number theory

## Education

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**Rutgers University — New Brunswick** (expected)  
*Ph.D. Mathematics* 2019–2024

**Oglethorpe University**  
*B.S. Mathematics; Computer Science* 2014–2019  
*Summa cum laude*, with honors

## Publications

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- [1] Robert Dougherty-Bliss and Manuel Kauers. “Hardinian Arrays”. Submitted. 2023.
- [2] Robert Dougherty-Bliss and Doron Zeilberger. “Exploring general Apéry limits via the Zudilin–Straub t-transform”. In: *Journal of Difference Equations and Applications* 29.1 (2023), pp. 32–42.
- [3] Robert Dougherty-Bliss and Doron Zeilberger. “Lots and Lots of Perrin-Type Primality Tests and Their Pseudo-Primes”. To appear in *Integers*. 2023.
- [4] Robert Dougherty-Bliss. “Gosper’s algorithm and Bell numbers”. Submitted. 2022.
- [5] Robert Dougherty-Bliss. “Integral Recurrences from A to Z”. In: *The American Mathematical Monthly* 129.9 (2022), pp. 805–815.
- [6] Robert Dougherty-Bliss. “The Meta-C-Finite Ansatz”. In: *Fibonacci Quart* 60.5 (2022), pp. 143–150.
- [7] Robert Dougherty-Bliss, Christoph Koutschan, and Doron Zeilberger. “Tweaking the Beukers integrals in search of more miraculous irrationality proofs à la Apéry”. In: *The Ramanujan Journal* 58.3 (2022), pp. 973–994.
- [8] AJ Bu and Robert Dougherty-Bliss. “Enumerating restricted Dyck paths with context-free grammars”. In: *Integers* 21 (2021), pp. 1–14.
- [9] Robert Dougherty-Bliss and Doron Zeilberger. “Experimenting with Apéry Limits and WZ pairs”. In: *Maple Transactions* 1.2 (2021).
- [10] Robert Dougherty-Bliss and Doron Zeilberger. “Automatic conjecturing and proving of exact values of some infinite families of infinite continued fractions”. In: *The Ramanujan Journal* (2020), pp. 1–17.
- [11] K Abernathy et al. “Global dynamics of a cancer stem cell treatment model”. In: *International Journal of Dynamical Systems and Differential Equations* 9.2 (2019), pp. 176–186.

## Invited talks

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- [1] Robert Dougherty-Bliss. *New primality tests and their (very large) pseudoprimes*. Institute für Algebra Seminar. Linz, Austria, 2023.
- [2] Robert Dougherty-Bliss. *New primality tests and their (very large) pseudoprimes*. Fall AMS Southeastern Sectional. Mobile, Alabama, 2023.
- [3] Robert Dougherty-Bliss. *Gosper's algorithm and Bell numbers*. Fall AMS Southeastern Sectional. Chattanooga, Tennessee, 2022.
- [4] Robert Dougherty-Bliss. *The Meta C-finite ansatz*. 20th International Fibonacci Conference. Sarajevo, Bosnia e Herzegovina, 2022.
- [5] Robert Dougherty-Bliss. *The Meta-C-finite ansatz*. Rutgers Experimental Mathematics Seminar. 2022.
- [6] Robert Dougherty-Bliss. *Combinatorial Union Busting with Stopped Strings*. New York Combinatorics Seminar. 2021.
- [7] Robert Dougherty-Bliss. *More irrationally good approximations from Beukers integrals*. Combinatorial and Additive Number Theory. 2021.
- [8] Robert Dougherty-Bliss. *Automagic Inverse Continued Fraction Calculators*. Rutgers Experimental Mathematics Seminar. 2020.
- [9] Robert Dougherty-Bliss. *The Ergonomics of Computer Algebra*. Rutgers Experimental Mathematics Seminar. 2019.

## Outreach talks

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- [1] Robert Dougherty-Bliss. *Proofs by Example*. DIMACS / CUNY REU. 2023.
- [2] Robert Dougherty-Bliss. *Proofs by Example*. Rutgers Undergraduate Mathematical Society. 2023.
- [3] Robert Dougherty-Bliss. *When does a sum have an answer?* Rutgers Undergraduate Mathematical Society. 2022.
- [4] Robert Dougherty-Bliss. *Mathematical biology for fun and profit*. Central Washington University Math Club. 2021.

## Teaching

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<b>Rutgers University</b> .....	
<b>Number Theory</b>	<i>Summer 2021, Summer 2022</i>
<i>Instructor</i>	
<b>Introduction to Real Analysis</b>	<i>Spring 2021, Fall 2021, Fall 2023</i>
<i>Teaching assistant</i>	
<b>Introduction to Abstract Algebra</b>	<i>Fall 2023</i>
<i>Teaching assistant</i>	
<b>Calculus III</b>	<i>Fall 2022</i>
<i>Teaching assistant</i>	
<b>Calculus II</b>	<i>Spring 2022, Spring 2023</i>
<i>Teaching assistant</i>	
<b>Calculus I</b>	<i>Fall 2020</i>
<i>Teaching assistant</i>	

## Professional service

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<b>Undergraduate Directed Reading Program</b> <i>Mentor</i>	<b>Rutgers University</b> 2023
<b>Arkansas Undergraduate Mathematics Competition</b> <i>Problem writer / grader</i>	2023
<b>DIMACS REU</b> <i>Graduate school panel panelist</i>	2022
<b>MoMath Masters</b> <i>Problem writer</i>	<b>National Museum of Mathematics</b> 2021
<b>Experimental Mathematics Seminar</b> <i>Co-organizer</i>	<b>Rutgers University</b> 2020–
<b>American Mathematical Society Graduate Chapter</b> <i>President</i>	<b>Rutgers University</b> 2020–
<b>Graduate Liaison Committee</b> <i>Member</i>	<b>Rutgers University</b> 2020–2022
<b>Combinatorics and Algebras from A to Z</b> <i>Co-organizer</i>	2021
Birthday conference in honor of Doron Zeilberger and Amitai Regev.	
<b>Reviewer for:</b> Journal of Number Theory, The American Statistician, Discrete Mathematics, Discrete Mathematics Letters	

## Awards

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<b>Rutgers University</b> .....	
<i>TA Teaching Excellence Award</i>	2022, 2023
In recognition of valuable contributions to undergraduate teaching.	
<b>Oglethorpe University</b> .....	
<i>James Edward Oglethorpe Award</i>	2019
In recognition of scholarship, leadership, and character. Awarded by university faculty vote.	
<i>Sally Hull Weltner Award for Scholarship</i>	2019
Awarded to Senior with highest grade-point average.	
<i>Ronald L. Carlisle Prize</i>	2019
Given to outstanding Senior in mathematics and computer science.	

## Past Positions

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<b>Data Scientist</b> <i>Government Accountability Office</i>	2023
<b>Statistical Consultant</b> <i>League of Women Voters of New Jersey</i>	2022
<b>Summer Fellow and Instructor</b> <i>Metric Geometry and Gerrymandering Group, Tufts University and MIT</i>	2018, 2019
<b>Summer Instructor</b> <i>Oglethorpe University</i>	2017
<b>Summer Fellow</b> <i>Winthrop University</i>	2016