



# Adam Rumpf

Instructor of Applied Mathematics  
Florida Polytechnic University  
4700 Research Way  
Lakeland, FL 33805

Phone: 863.874.8621  
E-Mail: [arumpf@floridapoly.edu](mailto:arumpf@floridapoly.edu)  
Website: [adam-rumpf.github.io](https://adam-rumpf.github.io)

---

## Education

- 2020 Ph.D. in Applied Mathematics  
Illinois Institute of Technology, Chicago, IL  
Dissertation Title: Mathematics of Civil Infrastructure Network Optimization  
Advisor: Hemanshu Kaul, Ph.D., Illinois Institute of Technology
- 2011 B.S. in Applied Mathematics for the Life and Social Sciences, Minor in Geological Sciences  
Arizona State University, Tempe, AZ
- 

## Publications

- 2022 H. Kaul and A. Rumpf. A linear input dependence model for interdependent networks. *European Journal of Operational Research*, 302(2):781–797, doi:[10.1016/j.ejor.2022.01.020](https://doi.org/10.1016/j.ejor.2022.01.020).
- 2021 A. Rumpf and H. Kaul. A public transit network optimization model for equitable access to social services. In *Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO'21)*, October 5–9. Association for Computing Machinery, New York, NY, doi:[10.1145/3465416.3483288](https://doi.org/10.1145/3465416.3483288).
- 2011 J. Ames, A. Feiler, G. Mendoza, A. Rumpf, and S. Wirkus. Determination of Tuscon, Arizona as an Ecological Trap for Cooper's Hawks (*Accipiter cooperii*).  
Poster session award recipient at the 2011 Ana G. Mendez University System (AGMUS) Research Symposium in Tuscon, AZ.
- 

## Conference Activity

- 2026 An Accessible Approach to Mathematical Modeling without Differential Equations Prerequisites. [SIMIODE EXPO 2026](#), Virtual, February 13–14.
- 2025 Poster on a trilevel network interdiction game for the minimum-cost flow problem with input dependence. [2025 INFORMS Annual Meeting](#), Atlanta, GA, October 26–29.  
Poster on spatial and temporal accessibility of pharmacies and urgent care in Polk County, Florida. Research Day, Florida Polytechnic University, Lakeland, FL, April 21.
- 2024 Getting to the good part: An applications-first approach to Calculus II through differential equations modeling. AMS Special Session on Modeling to Motivate the Teaching of the Mathematics of Differential Equations, [Joint Mathematics Meetings 2024](#), San Francisco, CA, January 3–6.
- 2022 Trilevel Network Interdiction Game for the Minimum-Cost Flows Problem with Interdependent Networks. [44th Annual Suncoast Regional MAA Meeting](#), Florida Polytechnic University, Lakeland, FL, December 2.  
From math avoider to math curator: How mathematical modeling changed my life. [SIMIODE EXPO 2022](#), Virtual, February 10–13.

- 2021 A public transit network optimization model for equitable access to social services. [Equity and Access in Algorithms, Mechanisms, and Optimization \(EAAMO'21\)](#), Virtual, October 5–9.
- 2017 Linear input dependence model for interdependent civil infrastructure systems with network simplex based solution algorithm. [31st Midwestern Conference on Combinatorics and Combinatorial Computing](#), University of West Georgia, Carrollton, GA, October 20–22.
- 2016 Poster on network simplex based algorithm for the minimum cost flow problem with linear interdependencies. [2016 INFORMS Annual Meeting](#), Nashville, TN, November 12–16.
- Network simplex based algorithm for the minimum cost flow problem with linear interdependencies. [Chicago Area SIAM Student Conference 2016](#), University of Illinois at Chicago, IL, April 16.
- 

### Departmental Talks

- 2024 A Crash Course in  $\text{\LaTeX}$ . Alpha Squad Math Club Invited Talk, Florida Polytechnic University, Lakeland, FL, February 26.
- 2022 Optimization-based models for interdependent civil infrastructure networks. Department of Applied Mathematics Seminar, Florida Polytechnic University, Lakeland, FL, October 4.
- Introduction to Mathematical Modeling. Alpha Squad Math Club Invited Talk, Florida Polytechnic University, Lakeland, FL, February 24.
- 2020 Public transit network optimization with social access objectives. Department of Applied Mathematics Seminar, Illinois Institute of Technology, Chicago, IL, March 12.
- 2016 Network simplex based algorithm for the minimum-cost network flow problem with linear interdependencies. Department of Applied Mathematics Seminar, Illinois Institute of Technology, Chicago, IL, April 26.
- Introduction to minimum cost flow and the network simplex algorithm. Department of Applied Mathematics Seminar, Illinois Institute of Technology, Chicago, IL, April 19.
- 

### Research Interests

- Operations Research:** civil infrastructure planning, public transit planning, disaster preplanning and recovery
- Optimization:** linear programming, multilevel programming, stochastic programming
- Graph Theory:** network flows, interdependent networks, network optimization, multilayer network design
- Mathematical Biology:** dynamical systems models, population ecology, epidemiology

---

## Teaching Experience

**Florida Polytechnic University**, Lakeland, FL

MAC 2311: Analytic Geometry and Calculus I

Instructor (Sp23, Fa21)

MAC 2312: Analytic Geometry and Calculus II

Instructor (Fa24, Sp24, Fa23, Fa22, Sp22, Fa21)

Course Coordinator (Fa24, Sp24, Fa23)

Major Revision Designer (Fa23)

MAC 2313: Analytic Geometry and Calculus III

Instructor (Sp26, Fa25, Su24, Fa22, Su22, Sp22)

Course Coordinator (Sp26, Fa22, Sp22)

Course Co-Coordinator (Fa25)

Major Revision Designer (Sp26)

MAD 3105: Discrete Mathematics II

Sole Instructor (Sp25)

Major Revision Designer (Sp25)

MAP 2250: Mathematical Technology

Sole Instructor (Sp26)

Initial Course Co-Designer (Fa25)

MAP 2302: Differential Equations

Instructor (Fa23)

MAP 3930: Special Topics

Sole Instructor: Mathematical Applications of Python (Sp26)

MAP 4103: Mathematical Modeling

Sole Instructor (Fa25)

Initial Course Co-Designer (Fa25)

MAP 4202: Optimization Theory

Sole Instructor (Sp24, Sp23)

Initial Course Designer (Sp23)

IDS 1380: Foundational Lessons in Applications of Mathematics

Instructor (Fa24)

IDS 1721: Computing and Problem Solving for STEM

Instructor (Sp25)

**Art of Problem Solving Online**, URL <https://artofproblemsolving.com>

Introductory Algebra Instructor (2020 – 2021)

Precalculus Instructor (2020 – 2021)

Introductory Programming and Python Instructor (2020 – 2021)

Introductory Number Theory Instructor (2020 – 2021)

**Illinois Institute of Technology**, Chicago, IL

Applied Mathematics Teaching Assistant (2012 – 2017)

Introductory Calculus Instructor (2015)

Precalculus Instructor (2014)

**Ferris State University**, Big Rapids, MI

Mathematics and Science Tutor (2011 – 2012)

---

## Service to Profession

### Open Access Educational Resources

QUBES Hub Resources (2021 – present), URL <https://qubeshub.org/community/members/23700/contributions>

Python Packages (2021 – present), URL <https://pypi.org/user/arumpf>

Mathematical Games (2019 – present), URL <https://adam-rumpf.itch.io>

Wolfram Demonstrations (2017 – 2018), URL <https://demonstrations.wolfram.com/authors/adam-rumpf>

### SIMIODE Challenge Using Differential Equations Modeling ([SCUDEM](#))

Volunteer Judge (2021 – present)

---

## Departmental Service

### Department of Applied Mathematics, Florida Polytechnic University, Lakeland, FL

Campus Engagement Committee (Fa25 – present)

Search Committee (Fa24 – Sp25)

Calculus Reform Committee (Sp22 – Fa24)

Mathematics Placement Committee (Su22)

Undergraduate Mathematical Modeling Competition Team Coordinator (Sp22 – present)

Duties include holding informational and recruitment sessions, maintaining online resources, organizing and assigning coaches and teams, and coaching teams

### Department of Applied Mathematics, Illinois Institute of Technology, Chicago, IL

SIAM Student Chapter President (2016 – 2017)

Awarded a SIAM Student Chapter Certificate of Recognition (2017)

Chicago Area SIAM Student Conference Organizing Committee (2016 – 2017)

SIAM Student Chapter Vice President (2015 – 2016)

---

## Related Professional Skills

**Programming Languages:** Python, C++

**Mathematical Software:** Mathematica, CPLEX, MATLAB

**Markup Languages:** L<sup>A</sup>T<sub>E</sub>X, HTML

---

## Professional Affiliations

### Systemic Initiative for Modeling Investigations & Opportunities with Differential Equations ([SIMIODE](#))

Member (2021 – present)

### Society for Industrial and Applied Mathematics ([SIAM](#))

Member (2015 – present)