

# CHRISTINA DURÓN



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Tucson, AZ

## ACADEMIC EMPLOYMENT

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### Postdoctoral Research Associate

Mathematics Department, University of Arizona

Aug 2019 – present

### High School Teacher

Mathematics Department, The Webb Schools of California

Aug 2013 – June 2019

## RESEARCH INTERESTS

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Network Theory; Network Dynamics; Statistical Analysis and Modeling of Complex Networks; Mathematics-Biology

## EDUCATION

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### Claremont Graduate University

Ph.D. in Mathematics

May 2019

- **Dissertation:** The Distribution of Betweenness Centrality in Exponential Random Graph Models
- **Advisors:** Dr. Ami Radunskaya (Professor, Pomona College) and Dr. Johana Hardin (Professor, Pomona College)

### University of Washington

Master's in Applied Mathematics

June 2013

### Swarthmore College

Bachelor of Arts in Mathematics, Computer Science Minor

May 2012

## PUBLICATIONS

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**Durón C.** Heatmap Centrality: A New Measure to Identify Super-Spreader Nodes in Scale-Free Networks. PLoS ONE. 2020; 15(7): e0235690. [doi: 10.1371/journal.pone.0235690](https://doi.org/10.1371/journal.pone.0235690)

**Durón C**, Pan Y, Gutmann DH, Hardin J, Radunskaya A. Variability of Betweenness Centrality and Its Effect on Identifying Essential Genes. Bulletin of Mathematical Biology. 2019; 81(9): 3655-3673. [doi: 10.1007/s11538-018-0526-z](https://doi.org/10.1007/s11538-018-0526-z)

Pan Y, **Durón C**, Bush EC, et al. Graph Complexity Analysis Identifies an ETV5 Tumor-Specific Network in Human and Murine Low-Grade Glioma. PLoS ONE. 2018; 13(5): e0190001. [doi: 10.1371/journal.pone.0190001](https://doi.org/10.1371/journal.pone.0190001)

## TECHNICAL REPORTS

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Burkow D, **Durón C**, Heal K, Vargas V, Melara LA. A Mathematical Model of the Emission and Optimal Control of Photochemical Smog. Technical Report, MTBI-08- 07M, Mathematical and Theoretical Biology Institute, Arizona State University, 2011.

## RESEARCH POSITIONS

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### Graduate Research Assistant

Pomona College

Jan 2017 – June 2018

- NIH funding under Dr. Ami Radunskaya and Dr. Johana Hardin

### Jet Propulsion Laboratory Intern

California Institute of Technology

June 2015

- Implemented the Extended Kalman Filter (EFK) and incorporated inter-robot measurements to improve the state estimation and localization of autonomous vehicles

## Mathematical and Theoretical Biology Institute Researcher

June 2011

Arizona State University

- Developed a mathematical model for the evaluation and analysis of the air pollution in Los Angeles

## TEACHING EXPERIENCE

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### Instructor of Record

University of Arizona

- Math 129: Calculus II Fall 2020
- Math 475A: Mathematical Principles of Numerical Analysis Fall 2020
- Undergraduate Teaching Assistantship Seminar, Co-Organizer Fall 2020
- Math 163: Basic Statistics Spring 2020
- Math 122B: First Semester Calculus Fall 2019
- Math 196L: Precalculus Supplementary Seminar Fall 2019

### Instructor of Record

The Webb Schools of California

- Advanced Placement Computer Science Principles Fall 2018 – Spring 2019
- Introduction to Computer Programming with Python Fall 2014 – Spring 2018
- Honors Precalculus Fall 2014 – Spring 2019
- Precalculus Fall 2013 – Spring 2019
- Integrated Mathematics 2 Fall 2013 – Spring 2014

## CONFERENCE AND SEMINAR TALKS

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### Contributed

- **Identifying Treatment Targets for Pediatric Gliomas using Network Centrality Measures** June 2020  
*SIAM Conference on the Life Sciences (Virtual)*

### Seminar

- **Network Data Analysis Techniques on DESeq and RNASeq Data** Nov 2019  
*University of Arizona*

### Other Talks

- **The Distribution of Betweenness Centrality in Exponential Random Graph Models** April 2019  
*Doctoral Thesis Defense*
- **A Mathematical Model of the Emission and Optimal Control of Photochemical Smog** Aug 2011  
*The Mathematical and Theoretical Biology Institute (MTBI) at Arizona State University*

## DEVELOPMENT AS AN EDUCATOR

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### Certification

- **Effective Online Discussions** June 2020  
*University of Arizona*
  - Developed strategies for designing and facilitating effective online discussions that deepen learning, expand student exposure to curriculum, and increase student engagement
- **Teaching the Large Online Course** June 2020  
*University of Arizona*
  - Developed instructional practices for encouraging student engagement and motivation in a large online class, as well as for effectively managing administrative tasks such as monitoring student progress and conducting assessments

## DEVELOPMENT AS A RESEARCHER

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### Workshops

- **Network Modeling for Epidemics** Aug 2020  
*University of Washington*

- **BioBridge Clinic** Jan 2020  
University of California, Irvine
- **Computational Genomics Summer Institute** May 2020  
University of California, Los Angeles

## OUTREACH AND SERVICE

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### Mentoring and Advising

- **Undergraduate Research Mentor** Fall 2020 – present  
University of Arizona
- **Mathematics Undergraduate Teaching Assistantship (UTA) Program Mentor** Fall 2020  
University of Arizona
- **Math 485 Modeling Group Mentor** (Team of 4 undergraduates), *Instant Decision for Credit Card Application* Spring 2020  
University of Arizona
- **Math Club Advisor** Fall 2017 – Spring 2019  
The Webb Schools of California

### Departmental Service

- **Mathematics Undergraduate Teaching Assistantship (UTA) Program**, Co-Director Fall 2020 – present  
University of Arizona
- **Postdoctoral Group Governance Non-Academic Liaison** Spring 2020 – present  
University of Arizona

### Service to the Discipline

- **Reviewer for Revista de Matemática: Teoría y Aplicaciones** Oct 2019
- **Mathematics and MATLAB Summer Workshop**, Co-Coordinator June 2016, June 2017, June 2018  
Claremont Graduate University
- **Mathematics and MATLAB Summer Workshop**, Co-Instructor June 2016, June 2017  
Claremont Graduate University

### Outreach

- **Math Circle** Aug 2019 - present  
University of Arizona

## HONORS AND AWARDS

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- Five Star Faculty** (Nomination) Feb 2020  
University of Arizona
- The Jean E. Miller Excellence in Teaching Award** June 2018  
The Webb Schools of California
- The Thompson and Vivian Webb Excellence in Teaching Award** June 2015  
The Webb Schools of California
- The Heinrich W. Brinkmann Mathematics Prize** June 2012  
Swarthmore College

## FUNDING

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### Research Grants

- **Collaborative Research Grant for Postdocs** (\$1,500) June 2020  
University of Arizona

### **Travel Awards**

- **TDA-BIO (\$1,000)** Oct 2016  
*ACM Conference on Bioinformatics, Computational Biology, and Health Informatics*

### **Fellowships**

- **Clinic Fellowship (\$900)** Jan 2020  
*University of California, Irvine*
- **Daniel Pick Fellowship (\$10,000)** Oct 2017  
*Claremont Graduate University*
- **Joseph and Elizabeth Peeler Endowed Fellowship (\$32,570)** Aug 2015 – June 2017  
*Claremont Graduate University*
- **CGU Mathematics Fellowship (\$13,700)** Aug 2014 – June 2015, June 2017  
*Claremont Graduate University*
- **CGU Minority Fellowship (\$2,000)** Aug 2014 – June 2016  
*Claremont Graduate University*

### **SKILLS**

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#### **Programming Languages**

- C (Moderate proficiency)
- C++ (Moderate proficiency)
- MATLAB (Proficient)
- Python (Proficient)
- R (Proficient)

#### **Scientific Applications**

- GitHub
- LaTeX
- RSweave

#### **Languages**

- English (Native)
- Spanish (Reading, writing, and conversational speaking)