

# Sarah Brauner

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*CV updated on September 2, 2019*

<i>Education</i>	<b>University of Minnesota</b> PhD Candidate in Mathematics Advisor: Vic Reiner  M.S. in Mathematics Major topic: combinatorics and reflection groups Minor topic: algebraic topology  <b>Smith College</b> Post-Baccalaureate Program for Women in Mathematics, GPA: 4.0  <b>Reed College</b> B.A. in Mathematics/Economics, GPA: 3.87 <i>A New Order of Things: the Structure of Partial Orders in the Face of Lower Bounds</i> Advisors: Angélica Osorno (Reed College), Joshua Grochow (UC Boulder)	Fall 2017 – Present <i>Expected May 2022</i>  August 2019  2016 - 2017  2012 - 2016
<i>Papers</i>	(With F. Glebe and D. Perkinson) “Enumerating Linear Systems on Graphs,” arXiv:1906.04768, 2019.  (With T. Friedmann) “One Garnir to Rule Them All: On Specht Modules and the CataLAnKe Theorem,” arXiv:1803.10918, 2018.	
<i>Conference Proceedings</i>	(With F. Glebe and D. Perkinson) “Enumerating Linear Systems on Graphs” <i>Séminaire Lotharingien de Combinatoire</i> <b>82B</b> (2019), Article # 17 Formal Power Series and Algebraic Combinatorics (FPSAC), Ljubljana, Slovenia.	
<i>Select Awards</i>	NSF Graduate Research Fellowship UMN Graduate School Excellence Research Grant AMS Student Travel Grant UMN College of Science and Engineering Graduate Fellowship UMN School of Mathematics Naresh Jain Fellowship Phi Beta Kappa, Reed College Meier Award for Distinguished Thesis in Economics, Reed College President Commendation for Academic Excellence, Reed College McGill Lawrence Grant (to conduct research in South Africa), Reed College	2019-2022 2019-2022 2018 2017-2020 2017-2020 2016 2016 2013, '14, '15, '16 2014

<i>Invited Talks</i>	“Enumerating Linear Systems on Graphs” <i>AMS Fall Sectional Meeting: Combinatorial Algebraic Geometry</i> September 2019 University of Wisconsin, Madison WI	
	“Enumerating Linear Systems on Graphs” <i>CAGE (Combinatorics, Algebra, and Geometry) Seminar</i> Drexel University, Philadelphia PA	April 2019
	“Enumerating Linear Systems on Graphs” <i>AMS Spring Sectional Meeting: Chip Firing and Divisor Theory</i> University of Hartford, Hartford CT	April 2019
	“Enumerating Linear Systems on Graphs” <i>Smith College Colloquium Lunch Talk</i> Smith College, Northampton MA	April 2019
	“One Garnir to Rule Them All: On Specht Modules and the CataLANKe Theorem” <i>AMS Fall Sectional Meeting: Combinatorics in Algebra and Geometry</i> Oct. 2018 University of Michigan, Ann Arbor MI	
<i>Other Presentations</i>	“Enumerating Linear Systems on Graphs ” (Poster) <i>Formal Power Series and Algebraic Combinatorics (FPSAC)</i> Ljubljana, Slovenia	July 2019
	“Enumerating Linear Systems on Graphs ” (Poster) <i>ALGECOM XVI</i> Loyola University, Chicago, IL	May 2019
	“A generalization of the free Lie algebra and its corresponding representations ” <i>USTARS Conference</i> Reed College, Portland OR	April 2018
<i>Teaching</i>	<b>University of Minnesota</b>	
	TA, Calculus II for UMN Talented Youth Mathematics Program	Fall 2019
	TA, UMN Combinatorics REU	Summer 2019
	Mentor, Directed Reading Project (DRP) for course on graph theory	Fall 2018
	<b>BEAM (Bridge to Enter Advanced Mathematics)</b>	
	Instructor and course designer, Logical Reasoning (for 6th graders)	Summer 2018
	<b>Smith College</b>	
	TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2016-2017
	<b>Reed College</b>	
	TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2014 - 2016
	Tutor for Introductory Analysis, Multivariate Calculus, Linear Algebra	2013 - 2016
	Grader, Math 382: Algorithms & Data Structures	Spring 2016
	TA and Grader, Microeconomic Theory	2015 - 2016
	TA and Grader, Introduction to Economics	2013 - 2014

**Organizing**

*Graduate Student Combinatorics Conference (GSCC)*: National weekend conference organized by and for graduate students. Approximately 100 participants. April 2021

*Co-organizer* with E. Banaian, G. Dorpalen-Barry, E. Kelley, E. Stucky, L. Webster

*Mathematics Project at Minnesota* (MPM) a 4-day workshop for undergraduates from groups underrepresented in math to build community and prepare students for a successful undergraduate career.

*Co-organizer* with H. Chandramouli, E. Banaian, M. Philbin Jan. 2020

*Mentor*: planned and implemented several sessions Jan. 2019

*UMN Graduate Student Seminar in Combinatorics and Algebra*: Weekly seminar for graduate students and post-docs, hosting internal and external speakers

*Co-organizer* with E. Banaian 2018-2019

*UMN Undergraduate Math Club*: Weekly club for undergraduate math majors to build community and foster mathematical curiosity

*Co-organizer* with M. Avery 2018–Present

*CAUSE (Council for the Advancement of Underrepresented Scientists and Engineers)*: Interdisciplinary group devoted to building community and improving retention amongst underrepresented minorities in graduate programs at UMN

*Member* 2018-Present

Co-organized inaugural and subsequent meetings to discuss gender bias in Reed College Math Dept with professors and students

2016

Student Coordinator for Reed College Visiting Professor Hiring Committee, responsible for organizing interview lunches between candidates and students

2016

**Teaching Outreach**

Teacher at Saturday Enrichment for MathCEP, University of Minnesota

*Logic Games and Puzzles* (grades 5-6) April 2019

*Fractals and Chaos* (grades 5-6) March 2018

*Graph Theory* (grades 7-8) January 2018

*Cryptology* (grades 5-6) December 2017

Volunteer math tutor for adults seeking GED, *Franklin Public Library* 2017-2019

**Mentoring**

UMN AWM Panelist, “Surviving Your First Year of Grad School” Sept. 2018

UMN Math Club Panelist, “Applying to REUs” Jan. 2018

Mentor and host for incoming graduate students 2018-2019

Mentor for several UMN undergraduate math majors 2018-Present

*Assist with application materials for REUs and graduate school*

UMN Women in Science and Engineering Graduate Mentor 2017 - 2019

Reed College International Student Mentor 2013