

Sarah Brauner

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CV updated on June 13, 2019

Education **University of Minnesota** Fall 2017 – Present
PhD in Mathematics *Expected May 2022*
Advisor: Vic Reiner

Smith College 2016 - 2017
Post-Baccalaureate Program for Women in Mathematics, GPA: 4.0

Reed College 2012 - 2016
B.A. in Mathematics/Economics, GPA: 3.87
A New Order of Things: the Structure of Partial Orders in the Face of Lower Bounds
Advisors: Angélica Osorno (Reed College), Joshua Grochow (UC Boulder)

Papers (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.

Conference Proceedings (With F. Glebe and D. Perkinson) “Enumerating Linear Systems on Graphs”
Séminaire Lotharingien de Combinatoire **82B** (2019), Article # 17
Formal Power Series and Algebraic Combinatorics (FPSAC), Ljubljana, Slovenia.

Select Awards UMN Graduate School Excellence Research Grant 2019-2022
NSF Graduate Research Fellowship 2019-2022
AMS Student Travel Grant 2018
UMN College of Science and Engineering Graduate Fellowship 2017-2020
UMN School of Mathematics Naresh Jain Fellowship 2017-2020
Phi Beta Kappa, Reed College 2016
Meier Award for Distinguished Thesis in Economics, Reed College 2016
President Commendation for Academic Excellence, Reed College 2013, '14, '15, '16
McGill Lawrence Grant (to conduct research in South Africa), Reed College 2014

Invited Talks “Enumerating Linear Systems on Graphs”
AMS Fall Sectional Meeting: Combinatorial Algebraic Geometry September 2019
University of Wisconsin, Madison WI

“Enumerating Linear Systems on Graphs”
CAGE (Combinatorics, Algebra, and Geometry) Seminar April 2019
Drexel University, Philadelphia PA

“Enumerating Linear Systems on Graphs”
AMS Spring Sectional Meeting: Chip Firing and Divisor Theory April 2019
University of Hartford, Hartford CT

“Enumerating Linear Systems on Graphs”
Smith College Colloquium Lunch Talk April 2019
Smith College, Northampton MA

“One Garnir to Rule Them All: On Specht Modules and the CataLANKe Theorem”
AMS Fall Sectional Meeting: Combinatorics in Algebra and Geometry Oct. 2018
University of Michigan, Ann Arbor MI

Other Presentations “Enumerating Linear Systems on Graphs ” (Poster)
Formal Power Series and Algebraic Combinatorics (FPSAC) July 2019
Ljubljana, Slovenia

“Enumerating Linear Systems on Graphs ” (Poster)
ALGECOM XVI May 2019
Loyola University, Chicago, IL

“A generalization of the free Lie algebra and its corresponding representations ”
USTARS Conference April 2018
Reed College, Portland OR

Teaching

University of Minnesota

Teaching Assistant for Combinatorics REU Summer 2019

Directed Reading Project (DRP) mentor for course on graph theory Fall 2018

BEAM (Bridge to Enter Advanced Mathematics)

Designed curriculum and taught course on logical reasoning to 6th graders Summer 2018

Smith College

Teaching Assistant in Tutoring Center (Calculus I, II, III and Linear Algebra) 2016-2017

Reed College

Teaching Assistant 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

Teaching Assistant and Grader, Microeconomic Theory 2015 - 2016

Teaching Assistant and Grader, Introduction to Economics 2013 - 2014

Service

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