

# KAMERYN J. WILLIAMS

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Department of Mathematics and Statistics · Sam Houston State University

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## ACADEMIC HISTORY

**Sam Houston State University**

**Fall 2021–Present**

Visiting Assistant Professor

Department of Mathematics and Statistics

**University of Hawai‘i at Mānoa**

**Fall 2018–Spring 2021**

Temporary Assistant Professor

Department of Mathematics

## EDUCATION

**Ph.D. in Mathematics**, May 2018

The Graduate Center, The City University of New York

Dissertation Adviser: Joel David Hamkins ([jdh.hamkins.org](http://jdh.hamkins.org))

Dissertation Title: The structure of models of second-order set theories

**B.S. in Mathematics**, Dec 2012, High Honors

Boise State University

Minor in Computer Science

## RESEARCH INTERESTS

I am a mathematical logician, specializing in set theory. My work has touched on the model theory of sets; the foundations of class forcing; set-theoretic potentialism; class theory; set-theoretic geology; and connections to philosophy of mathematics.

## PUBLICATIONS

Publications in refereed journals. All author lists are alphabetical.

Joel David Hamkins and Kameryn J. Williams, The  $\Sigma_1$ -definable universal finite sequence, *to appear in*: Journal of Symbolic Logic.

DOI: [doi:10.1017/jsl.2020.59](https://doi.org/10.1017/jsl.2020.59). Preprint: [arXiv:1909.09100](https://arxiv.org/abs/1909.09100) [math.LO].

Victoria Gitman, Joel David Hamkins, Peter Holy, Philipp Schlicht, and Kameryn J. Williams, The exact strength of the class forcing theorem, Journal of Symbolic Logic, Vol. 85, No. 3, pp. 869–95. (2020)

DOI: [doi:10.1017/jsl.2019.89](https://doi.org/10.1017/jsl.2019.89) Preprint: [arXiv:1707.03700](https://arxiv.org/abs/1707.03700) [math.LO].

Jonas Reitz and Kameryn J. Williams, Inner mantles and iterated HOD, Mathematical Logic Quarterly, Vol. 65, No. 4, pp. 498–510. (2019).

DOI: [doi:10.1002/malq.201800071](https://doi.org/10.1002/malq.201800071). Preprint: [arXiv:1810.08702](https://arxiv.org/abs/1810.08702) [math.LO].

Kameryn J. Williams, Minimum models of second-order set theories, *Journal of Symbolic Logic*, Vol. 8, No. 2, pp. 589–620. (2019).

DOI: doi:10.1017/jsl.2019.27. Preprint: arXiv:1709.03955 [math.LO].

Miha E. Habič, Joel David Hamkins, Lukas Daniel Klausner, Jonathan Verner, and Kameryn J. Williams, Set-theoretic blockchains, *Archive for Mathematical Logic*, Vol. 58, No. 7–8, pp. 965–997. (2019).

DOI: doi:10.1007/s00153-019-00672-z. Preprint: arXiv:1808.01509 [math.LO].

Publications under review.

Joel David Hamkins, Russell Miller, and Kameryn J. Williams, Forcing as a computational process, *under review*.

Preprint: arXiv:2007.00418 [math.LO]

Neil Barton and Kameryn J. Williams, Varieties of class-theoretic potentialism, *under review*.

Preprint: arXiv:2108.01543 [math.LO].

Kameryn J. Williams, The  $\omega$ -th inner mantle, *under review*.

Preprint: arXiv:2106.07812 [math.LO].

Other publications.

Kameryn J. Williams, *The Structure of Models of Second-Order Set Theories*, Ph.D. Dissertation, The City University of New York. (2018).

Available online: arXiv:1804.09526 [math.LO].

## TEACHING AND EDUCATIONAL EXPERIENCE

### Sam Houston State University

Fall 2021–Present

Visiting Assistant Professor

Courses Taught:

Math 1332 College Mathematics

Math 1410 Elementary Functions

### University of Hawai'i at Mānoa

Fall 2018–Spring 2021

Temporary Assistant Professor

Courses Taught:

Math 242 Calculus II

Math 372 Elem. Probability and Stats

Math 243 Calculus III

Math 454 Axiomatic Set Theory

Math 244 Calculus IV

Math 455 Mathematical Logic

Math 302 Intro. to Diff. Eq. I

Math 321 Intro. to Advanced Math

Math 655 Set Theory

**Bronx CC, CUNY****Fall 2017–Spring 2018**

Quantitative Reasoning Fellow

In this interdisciplinary program I partnered with non-mathematics faculty to promote the teaching of quantitative reasoning and the use of mathematical methods across the curriculum. I gave guest lectures in classrooms, conducted training for faculty, and advised them on how to incorporate the teaching of quantitative reasoning in their courses.

**Brooklyn College, CUNY****Fall 2013–Spring 2017**

Lecturer

Fall 2016–Spring 2017

Graduate Teaching Fellow C

Fall 2014–Spring 2016

Teaching Assistant

Fall 2013–Spring 2014

My final three years at Brooklyn College I taught courses as the instructor of record. My final year at Brooklyn College I this teaching was in their Brooklyn College Academy program, an early-college program where high school juniors and seniors take college courses for credit. My first year at Brooklyn College I worked as a teaching assistant, holding recitation sessions and grading exams.

Courses Taught:

Math 1011 Precalculus Mathematics

Math 1201 Calculus I

Math 1021 Precalculus Mathematics A

Math 1311 Thinking Mathematically

Math 1026 Precalculus Mathematics B

**AWARDS AND FELLOWSHIPS**

AMS–Simons Travel Grant. Summer 2020–Summer 2022.

Quantitative Reasoning Fellowship, The Graduate Center, CUNY. 2017–2018 academic year.

Graduate Teaching Fellowship, The Graduate Center, CUNY. 2014–2016 academic years.

University Fellowship, The Graduate Center, CUNY. 2014–2015 academic year.

Tuition Fellowship, The Graduate Center, CUNY. 2013–2018 academic years.

Student Award of Excellence, 2nd place, Mathematics Section, for presentation “Minimal models of Kelley–Morse set theory.” AAAS Pacific Division 2016 meeting.

**DISTANT TALKS**

Talks I have given at conferences or seminars at other institutions.

Potentialism about classes, *Set Theory Seminar*, The Graduate Center, CUNY (Oct 2021).

Potentialism about sets, potentialism about classes, invited talk, Early Career Researcher Workshop, The Logic Supergroup (Oct 2021).

Coding sets into inner mantles, contributed talk, Boise Extravaganza in Set Theory (June 2021).

Incompleteness and the universal algorithm, *Hofstra Mathematics Seminar*, Hofstra University (Apr 2021).

Varieties of class theoretic potentialism, *Konstanz Philosophy of Math Seminar*, University of Konstanz (Dec 2020).

The geology of inner mantles, *Oxford Set Theory Seminar*, University of Oxford (Dec 2020).

The universal algorithm and arithmetic potentialism, *Analysis, Logic, and Physics Seminar*, Virginia Commonwealth University (Oct 2020).

Incompleteness, the universal algorithm, and arithmetic potentialism, *Talk Math With Your Friends*, virtual mathematics colloquium (Sept 2020).

End-extensions of models of set theory and the  $\Sigma_1$  universal finite sequence, *Models of Peano Arithmetic Seminar*, The Graduate Center, CUNY (July 2020).

The geology of inner mantles, contributed talk, Boise Extravaganza in Set Theory (June 2020). [Canceled due to COVID-19 pandemic]

The geology of inner mantles, *Set Theory Seminar*, The Graduate Center, CUNY (May 2020).

The geology of inner mantles, invited talk, *MAMLS Spring Fling*, Mid-Atlantic Mathematical Logic Seminar (April 2020). [Canceled due to COVID-19 pandemic]

On axioms for multiverses for set theory, contributed talk, *RIMS Set Theory Workshop 2019* (Nov 2019).

The  $\Sigma_1$  universal finite sequence, contributed talk, 7th biannual European Set Theory Conference (July 2019).

The computable structure theory of forcing, *Seminari de lògica de Barcelona, Universitat de Barcelona* (May 2019).

Inner mantles and iterated HOD, contributed talk, ASL North American Annual Meeting (May 2019).

Transfinite recursion from Gödel–Bernays to Kelley–Morse, *Set Theory Seminar*, The Graduate Center, CUNY (May 2019).

The universal  $\Sigma_1$  finite sequence, contributed talk, *Cantor Meets Robinson Conference*, University of Campinas (Dec 2018).

Minimal models of second-order set theory, contributed talk, *2018 ASL North America Annual Meeting* (May 2018).

Strong second-order set theories do not have least transitive models, *Logic and Computation Seminar*, University of Pennsylvania (Nov 2017).

On the length of iterated full satisfaction classes, *Warsaw Workshop on Formal Truth Theories*, Institute of Philosophy, University of Warsaw (Sept 2017).

The exact strength of the class forcing theorem, *Research Seminar*, Kurt Gödel Research Center, University of Vienna (Sept 2017).

Minimal models of Kelley-Morse set theory, *Boise Extravaganza in Set Theory*, part of the 97th Annual Meeting of the AAAS Pacific Division, University of San Diego (June 2016).

## SELECTED LOCAL TALKS

A selection of talks I have given at my own institution.

The modal model theory of graphs, *Logic Seminar*, Sam Houston State University (Sept 2021).

Condensable models of set theory, *Logic Seminar*, University of Hawai'i at Mānoa (Oct 2019).

Amalgamating generic reals, a surgical approach, *Logic Seminar*, University of Hawai'i at Mānoa (Jan 2019).

The universal algorithm, the universal  $\Sigma_1$  finite sequence, and set theoretic potentialism, *Mathematics Department Colloquium*, University of Hawai'i at Mānoa (Nov 2018).

Forcing as a computational process, *Logic Seminar*, University of Hawai'i at Mānoa (Sept 2018).

The length of inductive iterated full satisfaction classes, *Models of Peano Arithmetic Seminar*, The Graduate Center, CUNY (Oct 2017).

The exact strength of the class forcing theorem, *Set Theory Seminar*, The Graduate Center, CUNY (Oct 2017).

Separating Class Determinacy, *Set Theory Seminar*, The Graduate Center, CUNY (Nov 2016).

Minimal models of Kelley-Morse set theory, *NY Graduate Student Logic Conference*, The Graduate Center, CUNY. (May 2016).

Minimal models of second-order set theories, *Set Theory Day*, The Graduate Center, CUNY (Mar 2016).

Admissible covers and compactness arguments for ill-founded models of set theory, *Set Theory Seminar*, The Graduate Center, CUNY (Sept 2015).

Rather classless models of set theory and second-order set theory, *Set Theory Seminar*, The Graduate Center, CUNY (Mar 2015).

Forcing over models of arithmetic, *Models of Peano Arithmetic Seminar*, The Graduate Center, CUNY (Nov 2014).

Scott's problem for models of ZFC, *Set Theory Seminar*, The Graduate Center, CUNY (Oct 2014).

On the independence of Borel's conjecture, *Set Theory Seminar*, The Graduate Center, CUNY (Apr 2014).

## SERVICE

Referee work.

Annals of Pure and Applied Logic.

Australasian Journal of Logic.

Contemporary Mathematics.

Journal of Symbolic Logic.

Mathematical Logic Quarterly.

Philosophia Mathematica.

Conference and seminar organization.

Co-organizer (with A. Beres, B. Kjos-Hanssen, and D. Ross), *Logic Seminar*, University of Hawai'i at Mānoa. Fall 2018–Spring 2021.

Co-organizer (with V. Gitman), *MAMLS Logic Friday*, Mid-Atlantic Mathematical Logic Seminar, The Graduate Center, CUNY. Oct 2017.

Co-organizer (with V. Gitman), *Set Theory Seminar*, The Graduate Center, CUNY. Fall 2017–Spring 2018.

Co-organizer (with A. Dolich), *Models of Peano Arithmetic Seminar*, The Graduate Center, CUNY, Fall 2017–Spring 2018.

Organizer, *Student Set Theory Seminar*, The Graduate Center, CUNY. Fall 2017–Spring 2018.

Other service.

Member, Library Committee, Department of Mathematics, University of Hawai'i at Mānoa. Fall 2019–Spring 2021.

Member, Putnam/Hanf Competition Committee, Department of Mathematics, University of Hawai'i at Mānoa. Fall 2018–Spring 2019.

## REFERENCES

Available upon request.

## CITIZENSHIP AND LANGUAGE PROFICIENCY

**Citizenship:** United States of America

**Languages:** English, native speaker/writer