

Carl Thomas Dean

University of Illinois at Chicago, Department of Mathematics
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Education

Ph.D. in Mathematics, University of Illinois at Chicago, 2016 - Present
Advisor: Dima Sinapova. Expected May 2021.

M.S. in Mathematics, University of Illinois at Chicago, 2016 - 2019
Advisor: Dima Sinapova. Received May 2019.

B.S. in Mathematics, Summa Cum Laude, Duquesne University, 2012-2016.
(Minor in Philosophy)

Holy Ghost Preparatory School, Summa Cum Laude, 2008 - 2012

Research

My general research interests are in set theory with a particular focus in forcing, large cardinals, and the tree property.

“Simultaneous Instances of the Tree Property” *(Submitted)*

Employment, St. Ignatius College Prep

Sullivan Visting Professor in Mathematics *August 2019 to June 2020*

A part-time teaching position at a prestigious private, Catholic high school in Chicago. Teaches one section of AP Calculus AB and one section of AP Calculus BC.

Employment, Saint Louis University

High School Adjunct Instructor *August 2019 to June 2020*

In collaboration with the Sullivan Visiting Professor position. Students in either AP Calculus section had the opportunity to receive college credit from Saint Louis University for performing sufficiently well during the year.

Employment, University of Illinois at Chicago

Teaching Assistant *August 2016 to present*

Leads a discussion section twice a week to supplement the main lecture. This includes additional lecturing, holding office hours, assigning/grading homework, and proctoring exams. Courses with ESP in the title are intensive workshops that supplement the standard course offering. The Math

194 courses in Summer 2018 were for global students at UIC that prepared them to take Calculus II and College Algebra. The Summer Enrichment Mathematics Workshop taught in Summer 2020 helped incoming freshman improve their conceptual understanding and skills in beginning and intermediate Algebra.

Math 118	Mathematical Reasoning	Fall 2019
Math 165	Calculus for Business	Spring 2020
Math 179	ESP Calculus I	Spring 2018
Math 180	Calculus I	Fall 2016, Spring 2017
Math 181	Calculus II	Fall 2017, Fall 2018
Math 182	ESP Calculus II	Fall 2018
Math 194	Calculus II/College Algebra	Summer 2018
Math 210	Calculus III	Summer 2017
Math 294	ESP Introduction to Advanced Mathematics	Spring 2019
N/A	Summer Enrichment Mathematics Workshop	Summer 2020

Graduate Assistant

October 2018 - August 2019

Provides direct services to a graduate student with disabilities, including academic and accessibility services.

Grader

Graded the homework assignments that were assigned during the semester.

Math 502 (Graduate)	Mathematical Logic	Fall 2017
Math 504 (Graduate)	Set Theory	Fall 2018

Employment, Duquesne University

Mathematics Tutor

January 2015 - May 2015, January 2013 - May 2013

Tutored students in various courses, including Precalculus, Calculus I, II, III, Linear Algebra, and Differential Equations.

Grants, Awards, and Honors

McAnulty College General Excellence Award, Nominee

May 2016

The highest award given to a graduating senior in the College of Liberal Arts at Duquesne University.

Departmental Excellence Award in Mathematics, Recipient

May 2016

The highest award given to graduating seniors in the Mathematics Department at Duquesne University.

Putnam Exam

December 2013, 2014, 2015

Received a score of 10, 12, and 10, respectively. The Putnam Exam is the preeminent mathematics competition for undergraduate mathematics students in the United States and Canada. The median score of this exam is normally between 0 and 2 points, and scoring above 10 normally puts the test taker in at least the 70th percentile.

Association for Symbolic Logic Travel Grant

May 2018

Awarded in order to attend the 11th Young Set Theory Workshop in Lausanne, Switzerland.

Talks

Graduate Student Colloquium, University of Illinois at Chicago *March 2019*

Held a talk titled, “Forcing and the Continuum Hypothesis.” The Graduate Student Colloquium aims to introduce first and second year graduate students to the different areas of mathematics being researched by the senior graduate students.

Duquesne University Department Seminar Series *October 2017*

Held a talk titled “Fun with Compactness and Models of Arithmetic,” in which we gave an introduction to Mathematical Logic and the Compactness Theorem, and then used Compactness to construct different nonstandard models of Arithmetic.

Duquesne University Department Seminar Series *March 2017*

Held a talk titled “Forcing and the Continuum Hypothesis,” discussing the independence phenomena, the background of forcing, and sketching how forcing was used by Cohen to prove the independence of the Continuum Hypothesis.

Philosophy of Mathematics Seminar, University of Illinois at Chicago *March 2017*

Held a talk titled “From Geometry to Geology,” in which we discussed a paper by Jonas Reitz on set theoretic pluralism and set theoretic geology.

Philosophy of Mathematics Seminar, University of Illinois at Chicago *February 2017*

Held a talk titled “Structuralism,” in which we gave an overview of the philosophical position known as mathematical structuralism.

Louise Hay Logic Seminar, University of Illinois at Chicago

Talks held are the following:

Talk Title:	Date:
“Dimension”	February 2019
“Kurepa Trees”	November 2018
“A Survey of Descriptive Set Theory”	September 2018
“How to multiply”	April 2018
“Elementary Submodels in Topology I”	February 2018
“Elementary Submodels in Topology II”	February 2018
“Computability Theory and some Basis Theorems”	November 2017
“Baire Category Theory and Applications”	September 2017
“Regular Ultrafilters and Saturation”	October 2016

Mathfest *Summer 2015*

Held a talk titled, “A Construction of the Hyperreals using Ultrapowers.”

Conferences

Very Informal Gathering of Logicians *February 2019*

Attendee. Held at UCLA. A meeting that celebrated the 50th anniversary of the 1967-68 Logic Year at UCLA and the many influences it had in Mathematical Logic.

11th Young Set Theory Workshop *June 2018*

Attendee. The workshop brings together young researchers in the domain of set theory and gives them the opportunity to learn from each other and from experts in a friendly environment. Held at the Bernoulli Center in Lausanne, Switzerland.

Appalachian Set Theory Workshop

June 2018

Attendee. A workshop on “Boolean ultrapowers and iterated forcing” led by Dilip Raghavan. Held at Carnegie Mellon University

Association for Symbolic Logic, 2018 North American Annual Meeting

May 2018

Attendee. Held at Western Illinois University.

Graduate Student Conference in Logic

April 2018

Attendee. Held at University of Wisconsin-Madison.

Model theory of Operator Algebras: Workshop and Conferences

September 2017

Attendee. Held at University of California, Irvine.

Appalachian Set Theory Workshop

November 2016

Motivated and worked through the main proofs of the Malliaris-Shelah paper “Cofinality spectrum theorems in model theory, set theory and general topology.” Held at Carnegie Mellon University.

Set Theory Workshop

October 2016

Covered topics in forcing, large cardinals, and applications of set theory. Held at University of Illinois at Chicago.

Set Theory Day Conference,

March 2016

Covered topics in large cardinals, and done so in honor of Joel David Hamkins’ birthday. Held at the CUNY Graduate Center.