

# Gabriel Conant

*University of Notre Dame*

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## Education

- Aug. 2015 **Ph.D. in Pure Mathematics**, *University of Illinois, Chicago, IL.*  
Thesis: *Model theory and combinatorics of homogeneous metric spaces*  
Advisor: David Marker
- May 2010 **MS in Pure Mathematics**, *University of Illinois, Chicago, IL.*
- May 2008 **BA in Mathematics**, *Colgate University, Hamilton, NY.*

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## Research Interests

**Model theory of groups**, *tame expansions of groups (especially the group of integers), additive combinatorics for definably amenable groups, arithmetic regularity.*

**Model theory of homogeneous structures**, *generic theories of metric spaces and graphs.*

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## Employment

- 2016-present **Lumpkins Postdoctoral Research Associate Professor**, *University of Notre Dame, Notre Dame, IN.*
- 2015-2016 **Visiting Assistant Professor**, *University of Notre Dame, Notre Dame, IN.*

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## Academic Service

- Jan. 2019 **Co-organizer of AMS Special Session "Recent advances in regularity lemmas" at the 2019 JMM in Baltimore, MD.**
- 2013-present **Webmaster of [forkinganddividing.com](http://forkinganddividing.com).**  
As a resource for students and researchers, I created and maintain a dynamic map of the network of definitions and dividing lines in model-theoretic classification theory.
- April 2017 **Co-organizer of AMS Special Session in Model Theory at Bloomington, IN.**
- Spring 2016 **Member of Ph.D. thesis defense committee.**  
For Somayeh Vojdani (University of Notre Dame, advisor: Anand Pillay)
- 2014-2015 **Co-organizer of the 16<sup>th</sup> Graduate Student Conference in Logic.**  
An annual conference for graduate students presenting thesis research or expository talks.
- 2013-2015 **Member of the University of Illinois at Chicago (UIC) chapter of the Association for Women in Mathematics.**  
Our chapter sponsored events such as: panels on success in graduate school, work-life balance, and the history of women in mathematics; workshops on creating an academic website or writing a CV.
- 2011-2013 **Co-organizer of the UIC Louise Hay Logic Seminar.**  
A weekly graduate student seminar for giving expository and research talks.
- Fall 2013 **Co-organizer of the UIC Model Theory Seminar.**

- Spring 2013 **Co-organizer of UIC Graduate Student Colloquium.**  
A research seminar intended for graduate students in all fields of mathematics.
- Fall 2011 **UIC Teaching Assistant Coordinator.**  
Duties: observe and evaluate first-year teaching assistants, and advise throughout the semester.
- 2009-2010 **Co-president of the UIC Mathematics Graduate Student Association.**  
Duties: Organize activities for faculty and students in the department.

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## Awards

- 2018-2020 **AMS Simons Travel Grant.**
- 2014-2015 **NSF Research Training Group Pre-doctoral Fellow**, *University of Illinois*, Chicago, IL.  
I was supported as a graduate student in UIC's RTG program in algebraic geometry and related fields, including number theory, complex dynamics, model theory and logic.
- 2008 **Edwin J. Downie '33 Award for Mathematics**, *Colgate University*, Hamilton, NY.  
Given annually to a senior majoring in mathematics who has made outstanding contributions to the mathematics department through exemplary leadership, service, and achievement.
- 2006 **Sisson Prize in Mathematics**, *Colgate University*, Hamilton, NY.  
Awarded to an outstanding sophomore student in mathematics.

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## Teaching Experience

- 2015-present **VAP, Lumpkins Postdoctoral RAP**, *University of Notre Dame*, Notre Dame, IN.  
MATH 20550 Calculus III: Fall 2015 (36 students), Fall 2016 (66 students), Fall 2017 (64 students);  
MATH 10560 Calculus II: Fall 2015 (57 students), Spring 2016 (65 students)  
MATH 10250 Elements of Calculus I: Spring 2016 (29 students), Fall 2017 (69 students)  
MATH 10130 Beginning Logic: Fall 2016 (33 students)  
MATH 10120 Finite Mathematics: Spring 2017 (27 students)
- 2012-2014 **Lecturer (graduate student)**, *University of Illinois*, Chicago, IL.  
MATH 300 Writing for Mathematics: Fall 2013, Spring 2014  
MATH 210 Calculus 3: Fall 2012  
Summer Enrichment Workshop - Math 090 Intermediate Algebra: Summer 2013
- 2008-2013 **Teaching assistant (graduate student)**, *University of Illinois*, Chicago, IL.  
MATH 181 Calculus 2, MATH 180 Calculus 1, MATH 160 Finite Math for Business, MATH 121 Precalculus, MATH 090 Intermediate Algebra

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## Publications

- to appear E. Bering, G. Conant, & J. Gaster, **On the complexity of finite subgraphs of the curve graph**, accepted to Osaka Journal of Mathematics.
- to appear G. Conant, **There are no intermediate structures between the group of integers and Presburger arithmetic**, to appear in Journal of Symbolic Logic.
- to appear G. Conant & A. Pillay, **Stable groups and expansions of  $(\mathbb{Z}, +, 0)$** , to appear in Fundamenta Mathematicae.
- 2017 G. Conant, **Forking and dividing in Henson graphs**, Notre Dame J. Formal Logic **58** (2017), no. 4, 555-566.

- 2017 G. Conant, **An axiomatic approach to free amalgamation**, *J. Symbolic Logic* **82** (2017), no. 2, 648-671.
- 2017 G. Conant, **Neostability in countable homogeneous metric spaces**, *Ann. Pure Appl. Logic* **168** (2017), no. 7, 1442-1471.
- 2017 G. Conant, **Distance structures for generalized metric spaces**, *Ann. Pure Appl. Logic* **168** (2017), no. 3, 622-650.
- 2016 G. Conant, **A remark on strict independence relations**, *Arch. Math. Logic* **55** (2016), no. 3-4, 535-544.
- 2016 G. Conant & C. Terry, **Model theoretic properties of the Urysohn sphere**, *Ann. Pure Appl. Logic* **167** (2016), no. 1, 49-72.

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## Preprints

- arXiv 2018 *On finite sets of small tripling or small alternation in arbitrary groups*, arXiv 1806.06022.
- arXiv 2018 *Structure and regularity for subsets of groups with finite VC-dimension*, (with A. Pillay & C. Terry) arXiv 1802.04246.
- arXiv 2018 *Pseudofinite groups and VC-dimension*, (with A. Pillay) arXiv 1802.03361.
- arXiv 2017 *A group version of stable regularity*, (with A. Pillay & C. Terry) arXiv 1710.06309.
- arXiv 2017 *Independence in generic incidence structures*, (with A. Kruckman) arXiv 1709.09626.
- arXiv 2017 *Multiplicative structure in stable expansions of the group of integers*, arXiv 1704.00105.
- arXiv 2017 *Definable sets containing productsets in expansions of groups*, (with U. Andrews & I. Goldbring) arXiv 1701.07791.
- arXiv 2017 *Stability and sparsity in sets of natural numbers*, arXiv 1701.01387.
- arXiv 2015 *Extending partial isometries of generalized metric spaces*, arXiv 1509.04950.

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## Invited Talks

- Oct. 2018 **Pure and Applied Model Theory**, *University of Illinois*, Chicago, IL.
- Oct. 2018 **Neostability Workshop**, *International Research Station, Casa Matemática Oaxaca*, Oaxaca, Mexico.
- July 2018 **Special Session on Model Theory**, *ASL European Logic Colloquium*, *University of Udine*, Udine, Italy.
- July 2018 **Ramsey Theory in Logic, Combinatorics, and Complexity**, *Università di Bologna*, Bertinoro, Italy.
- June 2018 **South and East of England Model Theory Network**, *University of Norwich*, Norwich, UK.
- June 2018 **Department Colloquium**, *Hebrew University*, Jerusalem, Israel.
- May 2018 **Combinatorics and Additive Number Theory**, *CUNY*, New York, NY.
- May 2018 **Special Session on Model Theory**, *Association for Symbolic Logic (ASL) North American Annual Meeting*, *Western Illinois University*, Macomb, IL.
- Jan. 2018 **Model Theory and Combinatorics**, *Institut Henri Poincaré*, Paris, France.
- Dec. 2017 **Special Session on Model Theory**, *Canadian Mathematical Society Annual Winter Meeting*, *University of Waterloo*, Waterloo, Ontario.

- Aug. 2017 **Nonstandard Methods in Combinatorial Number Theory**, *American Institute of Mathematics*, San Jose, CA.
- June 2017 **Model Theory in Wrocław**, *Instytut Matematyczny, Uniwersytet Wrocławski*, Wrocław, Poland.
- July 2016 **Model Theory of Finite and Pseudofinite Structures**, *University of Leeds*, Leeds, UK.
- June 2016 **Thematic Program on Model Theory**, instructor for Undergraduate Summer School, *University of Notre Dame*, Notre Dame, IN.
- April 2016 **Graduate Student Conference in Logic**, plenary speaker, *University of Notre Dame*, Notre Dame, IN.
- April 2016 **Midwest Model Theory Day**, *University of Illinois*, Chicago, IL.
- Nov. 2015 **Homogeneous Structures Workshop**, *Banff International Research Station*, Banff, AB.
- Oct. 2015 **Special Session on Model Theory**, *AMS Central Fall Sectional Meeting*, *Loyola University*, Chicago, IL.
- July 2015 **Neostability Workshop**, *International Research Station, Casa Matemática Oaxaca*, Oaxaca, Mexico.
- June 2015 **BLAST**, *University of North Texas*, Denton, TX.