

# CURRICULUM VITAE

Raul Figueroa Sierra

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## Personal Information

**Birth place:** Bogotá, Colombia

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## Education

- PhD. Mathematics, Universidad de los Andes, August 2019 - present.  
Qualifying exam in algebra.  
PhD Thesis: “*Combinatorics of analytic ideals*”.  
Thesis advisor: Carlos Di Prisco.
- M.Sc. Mathematics, Universidad de los Andes, 2017- 2019.  
Qualifying exam in mathematical logic.  
Master Thesis: “*Cuantificadores cardinales en lógica continua*” (*Cardinal quantifiers on continuous logic*).  
Thesis advisor: Xavier Caicedo Ferrer.
- B.Sc. Mathematics, Universidad Nacional de Colombia, 2012- 2017.  
Undergraduate Thesis: “*Acerca de algunas nociones categóricas de clases no elementales*” (*About some categorical notions of non elementary classes*).  
Thesis advisor: Pedro Zambrano Ramirez.

**Research Interest:** Model theory, Set theory, Infinitary Combinatorics, and the applications of these areas to topology and analysis.

### Awards and Distinctions:

- Universidad de los Andes, Bogotá, Colombia.  
Master scholarship.
- Universidad de los Andes, Bogotá, Colombia.  
PhD scholarship.

### Preprints and in preparation:

- X. Caicedo and R. Figueroa, *Generalized quantifiers on continuous logic*. In preparation.

### Seminars and tutorial courses

- Infinitary logic seminar (2018-II).  
Professor: Xavier Caicedo.  
Bibliography: Keisler, H. J. (1971). *Model theory for infinitary logic: Logic with countable conjunctions and finite quantifiers*.
- Set theory seminar (2019-II-present)  
Professors: Carlos Di Prisco and Ramiro De la Vega.
- Tutorial course - Forcing Axioms (2019-II): The objective of this course was to study some applications of forcing axioms such as Martin's axiom, the proper forcing axiom and MM (Martin's maximum) to various areas of mathematics such as general topology, functional analysis and measure theory.  
Professor: Ramiro De la Vega.  
Bibliography: Todorcevic, S. (2014). *Notes on forcing axioms*.
- Tutorial course - Ramsey theory (2021-I): The main objective of the course is the study of the basic results of the Ramsey theory and its uses in the geometric theory of Banach spaces. A second objective is to study the use of topological dynamics techniques in Ramsey theory.  
Professor: Carlos Di Prisco.  
Bibliography: Todorcevic, S. *Introduction to Ramsey Spaces*. Princeton University Press, 2010.

### Teaching experience and related activities

- Graduate Assistant, Departamento de Matemáticas, Universidad de los Andes, from August 2017 to May 2022. Assistant to different courses in mathematics, my duties are: grading exams, grading and

assigning homeworks, and teaching a scheduled problem session every week.

- Lineal algebra, 2017-II
  - Lineal algebra, 2018-I
  - Differential Calculus, 2018-II
  - Differential Calculus, 2019-I
  - Integral calculus and Differential equations, 2019-II
  - Linear algebra and Calculus 3, 2020-I
  - Integral calculus and Probability, 2020-II
  - Integral calculus and Probability, 2021-I
  - Integral calculus and Differential equations, 2021-II
  - Linear algebra and Calculus 3, 2022-I
- Research Assistant, Departamento de Matemáticas, Universidad de los Andes, June-July 2019 and June-July 2018.
  - Assistant Student, Cursos libres juveniles de matemáticas, Facultad de ciencias, Universidad Nacional de Colombia, March-May 2017.
  - Assistant Student, Matemáticas Básicas, Dirección Académica, Universidad Nacional de Colombia, June-July 2016 and March-June 2016.
  - Assistant Student, Facultad de Ciencias, Universidad Nacional de Colombia, February - June 2015 and September - December 2014.

## Events

- Wilter school on Algebraic Topology 2017, Centro de Investigación en Matemáticas, A.C., en el Parque Científico y Tecnológico de Yucatán, Mérida, October 2-7 de 2017.

## Some contributed talks

- *Compact extensions of continuous logic and partition properties*, contributed talk to the Model Theory Session of the XVIII Latin American Symposium on Mathematical Logic, Concepción, Chile, December 16th to 20th 2019.
- *Hilbert's 10<sup>th</sup> problem*, VIII Encuentro Nacional de Matemáticas y Estadística, Universidad del Tolima, Colombia, May 2th to 4th 2018.