# Mauricio Gómez López

*Curriculum Vitae*

*Lafayette College*
*Department of Mathematics*
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## Academic Positions

2020-2025   **Visiting Assistant Professor**, *Lafayette College*, United States.

2017-2020   **Paul Olum Postdoctoral Scholar**, *University of Oregon*, United States.

2015-2017   **Scientific Assistant**, *University of Southern Denmark*, Denmark.

## Education

2011- 2015   **Ph.D. in Mathematics**, *University of Copenhagen*, Denmark.
Dissertation: *Spaces of piecewise linear manifolds.*

2009-2011   **M.S. in Mathematics**, *University of Copenhagen*, Denmark.

2005-2009   **B.S. in Mathematics**, *Universidad Nacional de Colombia*, Colombia.

## Research Interests

General   Matroid Theory, Algebraic Topology, Theory of PL and Topological Manifolds.

Specific   Cut-and-Paste K-Theory, Matroid Invariants (e.g., the Tutte Polynomial), Cobordism Categories, Spaces of Manifolds.

## Publications and Preprints

1. **The homotopy type of the topological cobordism category,** with Alexander Kupers. *Documenta Mathematica* 27, 2107-2182 (2022). arXiv:1810.0527.

2. **The homotopy type of the PL cobordism category. I.** To appear in *Algebraic and Geometric Topology.* arXiv:1608.06236.

3. **The homotopy type of the PL cobordism category. II.** To appear in *Algebraic and Geometric Topology.* arXiv:2308.04612.

4. **Realizing the Tutte polynomial as a cut-and-paste K-theoretic invariant.** Submitted to *Annals of K-Theory.* arXiv:2501.12250.

## Papers in Preparation

1. **The magnitude of a matroid.** To be submitted to *Orbita Mathematicae.*

2. **Symmetric monoidal categories of matroids and cut-and-paste K-theory.** To be submitted to *Homology, Homotopy and Applications.*

## Supervised Undergraduate Research Projects

1. **Matroids from tilings.** Student: Nitan Avivi (University of Oregon, Fall 2019).

2. **Cohomology theory.**     Student: Søren Eriksen (U. of Southern Denmark, Spring 2016).

## Teaching Experience (as Instructor of Record)

### Lafayette College

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|---|---|
| Spring 2025 | **Vector Spaces (Advanced Undergraduate Course)** |
| Spring 2025 | **Statistical Concepts (Two Sections)** |
| Fall 2024 | **Applied Statistics (Two Sections)** |
| Fall 2024 | **Statistical Concepts** |
| Spring 2024 | **Linear Algebra with Applications (Two Sections)** |
| Spring 2024 | **Applied Statistics** |
| Fall 2023 | **Modeling and Differential Calculus** |
| Fall 2023 | **Calculus II (Two Sections)** |
| Spring 2023 | **Modeling and Differential Calculus** |
| Spring 2023 | **Calculus II (Two Sections)** |
| Fall 2022 | **Calculus I (Two Sections)** |
| Fall 2022 | **Complex Analysis (Advanced Undergraduate Course)** |
| Spring 2022 | **Applied Statistics** |
| Spring 2022 | **Calculus III (Two Sections)** |
| Fall 2021 | **Calculus III** |
| Fall 2021 | **Calculus I (Two Sections)** |
| Spring 2021 | **Linear Algebra with Applications** |
| Spring 2021 | **Calculus II (Two Sections)** |
| Fall 2020 | **Calculus I (Three Sections)** |

### University of Oregon

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|---|---|
| Spring 2020 | **Fundamentals of Analysis II** |
| Spring 2020 | **Fundamentals of Analysis I** |
| Winter 2020 | **Fundamentals of Analysis II** |
| Fall 2019 | **Fundamentals of Analysis I** |
| Spring 2019 | **Elements of Discrete Mathematics II** |
| Winter 2019 | **Fundamentals of Analysis I** |
| Winter 2019 | **Elementary Linear Algebra I** |
| Fall 2018 | **Morse Theory (Graduate-Level Course)** |
| Spring 2018 | **Elements of Discrete Mathematics I** |
| Winter 2018 | **Introduction to Differential Equations** |
| Fall 2017 | **Calculus I** |

### University of Southern Denmark

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|---|---|
| Spring 2017 | **Generalized Linear Models** |
| Spring 2016 | **Algebraic Topology (Undergraduate Reading Course)** |
| Spring 2016 | **Algebra II: Introduction to Rings and Groups** |
| Spring 2016 | **Vector Calculus** |
| Fall 2015 | **Probability and Statistics** |
| Spring 2015 | **Algebra II: Introduction to Groups and Rings** |

## Presentations

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| 24 February 2020 | **Matroid theory: A unified theory of independence,** *Undergraduate Mathematics Colloquium at The College of Wooster.* Wooster, Ohio. |
| 8 October 2019 | **Matroid theory: A unified theory of independence,** *Algebra and Combinatorics Seminar at the Claremont Center for the Mathematical Sciences.* Claremont, California. |
| 8 October 2019 | **Cobordism categories and spaces of manifolds,** *Topology Seminar at the Claremont Center for the Mathematical Sciences.* Claremont, California. |
| 14 April 2018 | **The homotopy type of the topological cobordism category,** *AMS Western Sectional Meeting.* Portland, Oregon. |
| 21 November 2017 | **The homotopy type of the PL cobordism category,** *Topology Seminar at the University of Oregon.* Eugene, Oregon. |
| 7 September 2015 | **The homotopy type of the PL cobordism category,** *Third Congress of Young Researchers of the Royal Spanish Mathematical Society.* Murcia, Spain. |
| 6 June 2015 | **Spaces of piecewise linear manifolds,** *Topology Seminar at the University of Münster.* Münster, Germany. |
| 7 November 2014 | **Spaces of piecewise linear manifolds,** *Topology Seminar at the University of Copenhagen.* Copenhagen, Denmark. |

## Scholarships and Awards

1. **Danish Governmental Scholarship.** Scholarship consisting of a tuition waiver and financial support to cover living expenses throughout my graduate studies.
2. **Colfuturo Scholarship.** Merit-based scholarship granted to Colombian academics admitted to a graduate program abroad.

## Conferences Attended

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| January 2024 | **Joint Mathematics Meetings 2024**, San Francisco, California. |
| January 2020 | **Joint Mathematics Meetings 2020**, Denver, Colorado. |
| May 2019 | **62nd Cascade Topology Seminar**, *Portland State University*, Portland, Oregon. |
| April 2018 | **AMS Western Sectional Meeting**, *Portland State University*, Portland, Oregon. |
| June 2016 | **Topology of Manifolds: A conference in honor of Michael Weiss's 60th birthday**, *University of Lisbon*, Lisbon, Portugal. |
| September 2015 | **Third Congress of Young Researchers of the Royal Spanish Mathematical Society**, *University of Murcia*, Murcia, Spain. |
| July 2014 | **Young Topologists Meeting 2014**, *University of Copenhagen*, Copenhagen, Denmark. |
| June 2014 | **Manifolds, K-theory, and related topics**, *Inter-University Center*, Dubrovnik, Croatia. |
| July 2013 | **Young Topologists Meeting 2013**, *EPFL*, Lausanne, Switzerland. |
| August 2013 | **Masterclass on Homological Stability**, *University of Copenhagen*, Copenhagen, Denmark. |
| April 2013 | **Masterclass on String Topology**, *University of Copenhagen*, Copenhagen, Denmark. |
| August 2012 | **Fourth Arolla Conference on Algebraic Topology**, Arolla, Switzerland. |
| July 2012 | **Young Topologists Meeting 2012**, *University of Copenhagen*, Copenhagen, Denmark. |
| June 2012 | **Topology and Groups**, *Freie Universität Berlin*, Berlin,Germany. |

## Outreach and Service

2020-2022    **Mathematics Colloquium**, Lafayette College (Organizer).

2019-2020    **McNair Scholars Program**, University of Oregon (Mentor).

## Conferences Organized

July 2014    **Young Topologists Meeting 2014**, *University of Copenhagen*, Copenhagen, Denmark.

## Professional Development

Spring 2024    **International Faculty Community of Practice**, Lafayette College.

Fall 2021    **Inclusive Instructors Academy**, *semester-long program on inclusive teaching strategies and methodologies*, Lafayette College.

2020-2021    **New Faculty Learning Community**, *year-long orientation for new faculty at Lafayette College*, Lafayette College.

July 2019    **Summer Institute on Scientific Teaching**, *week-long workshop focused on strategies for fostering diversity, equity, and inclusion in scientific teaching*, University of Oregon.

April 2019    **Engaging Students and Making Classrooms Fair and Inclusive: Cross-Disciplinary Strategies and Language to Promote Student Success**, *workshop led by Professor Kimberly Tanner (San Francisco State University)*, University of Oregon.

## Academic Visits

Spring 2013    **University of Cambridge.** Cambridge, United Kingdom.
(3 weeks)    Host: Oscar Randal-Williams.

Fall 2013    **University of Cambridge.** Cambridge, United Kingdom.
(6 weeks)    Host: Oscar Randal-Williams.

Spring 2014    **University of Cambridge.** Cambridge, United Kingdom.
(6 weeks)    Host: Oscar Randal-Williams.

## Language Skills

**Spanish**    Native

**English**    Fluent

**Norwegian**    Proficient

## References

**Daniel Dugger**, University of Oregon      ddugger@uoregon.edu

**Robert Root**, Lafayette College      robroot@lafayette.edu

**Martin Svensson**, U. of Southern Denmark      svensson@imada.sdu.dk