

Mauricio E. Gómez López

Curriculum Vitae

Lafayette College
Department of Mathematics
Easton, PA 18042-1778

☎ 1.541.780.5973

✉ Email: gomezlom@lafayette.edu

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, Topological Data Analysis.

Publications

1. **The homotopy type of the topological cobordism category**, with Alexander Kupers. *Documenta Mathematica* 27, 2107-2182 (2022). [arXiv:1810.0527](https://arxiv.org/abs/1810.0527).
2. **The homotopy type of the PL cobordism category. I.** To appear in *Algebraic and Geometric Topology*. [arXiv:1608.06236](https://arxiv.org/abs/1608.06236).
3. **The homotopy type of the PL cobordism category. II.** To appear in *Algebraic and Geometric Topology*. [arXiv:2308.04612](https://arxiv.org/abs/2308.04612).

Papers in Preparation

1. **Realizing the Tutte polynomial as a cut-and-paste K-theoretic invariant.**
2. **The magnitude of a matroid.**

Supervision and Mentoring

1. **Undergraduate research project.** Topic: Matroid theory.
Student: Nitan Avivi (University of Oregon), Fall 2019.
2. **Independent study project.** Topic: Cohomology theory.
Student: Søren Søndergaard Eriksen (University of Southern Denmark), Spring 2016.

Teaching Experience (as Instructor of Record)

Lafayette College

- Spring 2025 **Vector Spaces**
- Fall 2024 **Statistical Concepts**
- Fall 2024 **Applied Statistics (Two Sections)**
- 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

- 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**
- Spring 2018 **Introduction to Differential Equations**
- Winter 2018 **Introduction to Differential Equations**
- Fall 2017 **Calculus I**

University of Southern Denmark

- 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 Rings and Groups**

Presentations

- 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

- 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' 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.

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**, *workshop focused on inclusive teaching and student assessment methods*, 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*, University of Oregon.

Service

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

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

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

Gary Gordon, Lafayette College (Emeritus)

gordong@lafayette.edu

Rob Root, Lafayette College

robroot@lafayette.edu

Martin Svensson, U. of Southern Denmark

svensson@imada.sdu.dk