

Leyda M. Almodóvar

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Curriculum Vitae

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Professional appointment

Fall 2016- Present **Assistant Professor**, Mathematics Department, Stonehill College.
Easton, Massachusetts.

Education

August 2016 **Ph.D. in Mathematics**, The University of Iowa, Iowa City, Iowa, Thesis Advisor:
Dr. Isabel K. Darcy.
Thesis title: *Studying brain networks via topological data analysis and hierarchical clustering.*

2014 **Graduate Certificate in College Teaching**, Office of Graduate Teaching Excellence,
College of Education, The University of Iowa, Iowa City, Iowa.

2014 **M.S. in Mathematics**, The University of Iowa, Iowa City, Iowa.

2010 **B.S. in Mathematics**, University of Puerto Rico, Mayagüez, Puerto Rico.
Summa Cum Laude

2009 **Mathematical Sciences Research Institute Undergraduate Program**, Research
Experience for Undergraduates in Coding Theory, Mathematical Sciences
Research Institute, Berkeley, California.

Research Interests

Topological data analysis, applications to biology, and graph theory.

Teaching Experience

Assistant Professor, Stonehill College

Spring 2017 **Calculus I and Calculus II.**

Fall 2016 **Precalculus and Calculus I.**

Instructor, The University of Iowa

Fall 2014 **Elementary Functions**, Full responsibilities for the course. Led one section, lectured
four days per week, and used instructional system WebAssign for homework.

Teaching Assistant, The University of Iowa

**Led discussion sections, graded homework and quizzes, and held office
hours and review sessions.**

Fall 2015 **Introduction to Abstract Algebra I.**

Spring 2015 **Introduction to Research for Undergraduates.**

Spring 2013 **Calculus II.**

Fall 2012 **Calculus I.**

Spring 2012 **Calculus for Business.**

Fall 2011 **Calculus for Biology.**

Grader, The University of Iowa

Fall 2015 **Algebraic Topology.**

Fall 2015 **Calculus III.**

Spring 2015 **Differential Equations.**

Practicum Experience, The University of Iowa

Fall 2014 **Geometry for Elementary Teachers**, Supervisor: *Dr. Walter Seaman*, taught “Similar Triangle” unit, responsibilities included attending course, meeting weekly with the professor to discuss the course, and teaching one class with the professor observing.

Spring 2014 **Educational Psychology**, Supervisor: *Prof. Mitchell Kelly*, taught “Creating Learning Environments” unit, responsibilities included attending course, meeting weekly with the professor to discuss the course, and teaching one week with the professor observing.

Tutoring, The University of Iowa

Fall 2011-
Fall 2015 **Mathematics Tutorial Lab**, Provided drop-in tutoring for students enrolled in mathematics courses.

2013-2015 **Private tutor for Mathematics for Business, College Algebra, and Calculus I.**

Research Experience for Undergraduates

Summer
2014 **Graduate Assistant**, *Mathematical Sciences Research Institute Undergraduate Program*, Research Experience for Undergraduates in Arithmetic Aspects of Elementary Functions under the direction of Dr. Victor Moll, Berkeley, California. Helped with homework, presentations, group activities, and mentoring.

Honors

2016-2017 **Project NExT Fellow.**

2010–2015 **Dean’s Graduate Research Fellow**, The University of Iowa, Iowa City, Iowa. This fellowship is awarded to approximately 30 students per year by the Graduate College.

2010–2015 **Alliance for Graduate Education and Professoriate Fellow**, The University of Iowa, Iowa City, Iowa.

This fellowship is awarded to exceptional underrepresented students in STEM in order to enhance the preparation of students for entry into the professoriate.

2013, 2014 **Catherine Wegner Outstanding Mathematics Teaching Assistant Award**, The University of Iowa, Iowa City, Iowa.

This honor is awarded to outstanding teaching assistants by the mathematics department.

2010 **Karl Friedrich Gauss Award**, Mathematics Department, University of Puerto Rico, Mayagüez, Puerto Rico.

This honor is awarded to the student with the highest achievement by the mathematics department.

2010 **Luis Stefani Rafucci Award**, University of Puerto Rico, Mayagüez, Puerto Rico.

This is the highest honor awarded at the University of Puerto Rico at Mayagüez to students with 4.0 GPA at the time of graduation.

Publications

- Submitted for publication **Almodóvar, L.; Ignacio, Paul Samuel; Darcy, Isabel**, “*Hierarchical clustering barcodes*”, Research in Computational Topology.
- Submitted for publication **Byrnes, Alyssa; Fink, Julie; Lavigne, Gary; Nogues, Isabelle; Rajasekaran, Senthil; Yuan, Amber; Almodóvar, L.; Guan, Xiao; Kesarwani, Asshita; Medina, Luis A.; Rowland, Eric; Moll, Victor**, “*A closed-form solution might be given by a tree. Valuations of quadratic polynomials*”, Mathematical Magazine.
- May 2016 **Almodóvar, L.; Moll, Victor; Quan, Hadrian; Román, Fernando; Rowland, Eric; Washington, Michole**, “*Infinite products arising in paper-folding*”, Journal of Integer Sequences.

Invited Talks and Presentations

- October 2016 ***Hierarchical clustering barcodes***, Applied and Computational Topology Mini-Symposium, 2nd Annual Meeting of SIAM Central States Section, Little Rock, Arkansas.
- January 2016 ***Could topology provide insight into brain diseases?***, Early Career Female Mathematicians in Algebra and Topology, Joint Mathematics Meetings, Seattle, WA.
- October 2014 ***Studying brain networks via topological data analysis***, Modern Math Workshop, on behalf of MSRI, Society for the Advancement of Hispanics/Chicanos and Native Americans in Science pre-conference, Los Angeles, California.
- October 2014 ***Clustering and topological analysis of brain structures***, Topology Seminar, Pomona College, Claremont, California.
- July 2014 ***Topological Data Analysis***, Mathematical Sciences Research Institute Undergraduate Program, Berkeley, California.

Oral Presentations

- October 2015 ***Analyzing fMRI Brain Scans of Subjects Predisposed to Huntington’s Disease Using Persistent Homology***, Society for the Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS) Conference, Washington, DC.
- August 2015 ***Could topology provide insight into Huntington’s disease?***, Great Talks for a General Audience: Coached Presentations by Graduate Students, MAA MathFest 2015, Washington, DC.
- October 2014 ***Studying brain networks via topological data analysis***, Biomathematics and Ecology: Education and Research, Claremont Colleges, Claremont, California.
- April 2014 ***MAPPER as a tool for analyzing data obtained from flow cytometry.***, Underrepresented Students in Topology and Algebra Research Symposium, University of California, Berkeley, California.

Poster Presentations

- April 2015 ***Topological analysis of brain data***, Underrepresented Students in Topology and Algebra Research Symposium, Florida Gulf Coast University, Fort Myers, Florida.
- March 2015 ***Topological analysis of brain data***, Infinite Possibilities Conference, Oregon State University, Corvallis, Oregon.

- April 2013 ***Solving a System of Tangle Equations***, AMS Spring Central Sectional Meeting, Iowa State University, Ames, Iowa.
- January 2010 ***Multivariate Vandermonde Determinants and Toric Codes***, Joint Mathematics Meetings, San Francisco, California.
- October 2009 ***Multivariate Vandermonde Determinants and Toric Codes***, Society for the Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS) Conference, Dallas, Texas.

Workshops

*Travel funding provided

- August 2015 **Applied Topology and High-Dimensional Data Analysis Meeting***, University of Victoria, Victoria, British Columbia, Canada.
- January 2015 **Escuela de Análisis Topológico de Datos y Topología Estocástica (Topological Data Analysis and Stochastic Topology Workshop)**, CIMAT, Guanajuato, México.
- January 2015 **MAA Minicourse: Teaching College Mathematics**, Joint Math Meetings, San Antonio, Texas.
- April 2014 **Topology and Geometry of Networks and Discrete Metric Spaces***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- January 2014 **MAA Minicourse: Directing Undergraduate Research**, Joint Math Meetings, Baltimore, Maryland.
- January 2014 **AMS Short Course on Geometry and Topology in Statistical Inference**, Joint Math Meetings, Baltimore, Maryland.
- December 2013 **Topological Structures in Computational Biology***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- October 2013 **Modern Applications of Homology and Cohomology***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- October 2013 **Topological Data Analysis***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- October 2013 **Introduction to Statistics and Probability for Topologists***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- June 2013 **Algebraic Topology Summer Graduate School***, Mathematical Sciences Research Institute, Berkeley, California.

Departmental Service

- April 2015 **Volunteer**, Mathematics Graduate Board Fundraiser, Iowa City, Iowa.
- April 2015 **Volunteer**, Sonia Kovalevsky Day, The University of Iowa, Iowa City, Iowa.
Event for high-school-aged women featuring workshops, talks, and panels of professionals with math-related jobs.
- 2014 **Social co-chair**, Mathematics Graduate Board, Department of Mathematics, The University of Iowa.
MGB is an official university organization established and led by mathematics graduate students. The social co-chair is responsible for planning and promoting social events for the department.
- 2012-2014 **Recruiter**, Mathematical Sciences Research Seminar (SIDIM), Puerto Rico.

- April 2013 **Volunteer**, Mathematics Graduate Board Fundraiser, Iowa City, Iowa.
Feb. 2013 **Panelist**, Mathematical Sciences Research Seminar (SIDIM), Cupey, Puerto Rico.
April 2012 **Panelist**, Prospective graduate students visit weekend, The University of Iowa, Iowa City, Iowa.

University Service

- 2015-2016 **Graduate Student Senate**, The University of Iowa, Iowa City, Iowa.
April 2015 **Organizing Committee Member**, Three Minute Thesis Competition, The University of Iowa, Iowa City, Iowa.
2014-2015 **Travel Grant Committee Member**, The Graduate and Professional Student Government, The University of Iowa, Iowa City, Iowa.
2014-2015 **Graduate Student Success Committee**, Graduate Student Senate, The University of Iowa, Iowa City, Iowa.
December 2014 **Tutor**, Night Against Procrastination, The University of Iowa, Iowa City, Iowa.
November 2014 **Panelist**, Mentor Training Workshop for Sloan Faculty, The University of Iowa, Iowa City, Iowa.
December 2013 **Poster judge**, Fall Undergraduate Research Festival (FURF), The University of Iowa, Iowa City, Iowa.

STEM Community Service

- January 2017 **Judge**, MAA Undergraduate Student Poster Session, Joint Mathematical Meetings, Atlanta, Georgia.
October 2016 **Reviewer**, USTARS Proceedings.
March 2015 **Panelist**, Summer REUs and Internships, Infinite Possibilities Conference, University of Oregon, Corvallis, Oregon.
2014-2017 **Judge**, Moody's Mega Math Challenge, Nationwide high school modeling competition hosted by the Society for Industrial and Applied Mathematics and the Moody's Foundation.
April 2012 **Panelist**, Underrepresented Students in Topology and Algebra Research Symposium, The University of Iowa, Iowa City, Iowa.

Selected Conferences Attended

*Travel funding provided

- January 2017 **Joint Mathematics Meetings**, Atlanta, Georgia.
October 2016 **Blackwell-Tapia Conference and Awards Ceremony***, Knoxville, Tennessee.
October 2016 **Applied and Computational Topology Mini-Symposium**, 2nd Annual Meeting of SIAM Central States Section, Little Rock, Arkansas.
August 2016 **MAA Mathfest**, Columbus, Ohio.
January 2016 **Joint Mathematics Meeting**, Seattle, Washington.
October 2015 **Society for the Advancement of Hispanics/Chicanos and Native Americans in Science Conference (SACNAS)***, Washington, DC.
August 2015 **MAA Mathfest**, Washington, DC.

- April 2015 **Underrepresented Students in Topology and Algebra Research Symposium***, Florida Gulf Coast University, Fort Myers, Florida.
- March 2015 **Careers in Mathematical Sciences***, Institute for Mathematics and its Applications, Minneapolis, Minnesota.
- March 2015 **Infinite Possibilities Conference***, Oregon State University, Corvallis, Oregon.
- January 2015 **Joint Mathematics Meetings**, San Antonio, Texas.
- November 2014 **Blackwell-Tapia Conference and Awards Ceremony***, Institute for Pure and Applied Mathematics, Los Angeles, California.
- October 2014 **Society for the Advancement of Hispanics/Chicanos and Native Americans in Science Conference (SACNAS)***, Los Angeles, California.
- October 2014 **Biomathematics and Ecology: Education and Research***, Claremont Colleges, Claremont, California.
- April 2014 **Underrepresented Students in Topology and Algebra Research Symposium***, University of California, Berkeley, California.
- April 2013 **AMS Spring Central Sectional Meeting**, Iowa State University, Ames, Iowa.
- March 2012 **Mathematical Sciences Research Seminar (SIDIM)**, Mayaguez, Puerto Rico.
- October 2009 **Society for the Advancement of Hispanics/Chicanos and Native Americans in Science Conference (SACNAS)***, Dallas, Texas.

Professional Memberships

- 2016-2017 **Mathematical Association of America (MAA)**.
- 2013-Present **Association for Women in Mathematics (AWM)**.
- 2010-Present **American Mathematical Society (AMS)**.

Languages

- English **Fluent**
- Spanish **Fluent**