

ELLA FOSTER-MOLINA

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PROFESSIONAL POSITIONS

Swarthmore College, Swarthmore, PA

Social Sciences Quantitative Laboratory Associate 2017- 2025

LACOL, Haverford, PA

Instructor and Course Designer 2018- 2021

Georgetown University, Washington, DC

Visiting Instructor of Government 2015- 2016

University of Rochester, Rochester, NY

Instructor 2015

SUNY Oswego, Oswego, NY

Adjunct Professor 2015

EDUCATION

University of Rochester, Rochester, NY

M.A. Political Science, 2014

Fields: American Politics, Quantitative Methods, Comparative Politics

Swarthmore College, Swarthmore, PA

B.A. Political Science; B.A. Mathematics, 2007

Graduated with Honors

SKILLS

Technical: R, Stata, Python, Excel, LaTeX, Git, Google Suite

Languages: Spanish (conversational)

PAPERS

- Gardella, J.H. & Nation, M., & Foster-Molina, M. (Under Review) “Is more faculty leadership a good thing for schools? A Mixture Modeling Analysis.” *American Educational Research Journal*.
- Gardella, J.H., Nation, M., & Foster-Molina, M. (Under Review) “Mapping Relations Between Teacher Leadership and School Climate: A Latent Class Analysis.” *International Journal of Leadership in Education*
- Foster, L. & Foster-Molina, M. (Under Review) “Motivating and Comparing the LSQR/PLS and TSVD/PCR Algorithms using Optimization.” *SIAM*.

PUBLISHED DATASET & SOFTWARE PACKAGE

Harvard Dataverse “Historical Congressional Legislation and District Demographics 1972-2014.” 2017. doi:10.7910/DVN/CI2EPI

regress3d: “Plot regression surfaces and marginal effects in 3D.” 2025.

<https://cran.r-project.org/package=regress3d>

RESEARCH, PROGRAMMING, AND DATA ANALYSIS

Research Advisor, Memento Labs 2018-2020

- Advise on the design, implementation, and analysis of single subject experimentation.

Consultant, Measured Politics 2016-2020

- Design a randomized experiment to determine the impact of campaign donations on the likelihood that the candidate donated to wins.
- Analyze the preliminary results for 30 campaigns.

Research Assistant, Pippa Norris, Harvard University 2017

- Modify anchoring vignette questions in Perceptions of Electoral Integrity survey.
- Create 10 page document describing how to apply anchoring vignette method.
- Implement Stata and R code modifying variables based on anchoring principles.

Research Assistant, Lyndon Estes, Princeton University 2014

- Extract data from climate sensing pods across the country using Python and R.
- Collaborate to streamline the database.

Research Assistant, Richard Niemi, University of Rochester 2014

- Data analysis using South Asia Barometer. Examined the impact of education and generational cohort on sympathy for democracy.
- Assist with determining the beginning and ends of each regime type (ex: liberal democracy, military dictatorship) for five countries.

Program Assistant for Study Abroad, Lynda Powell, University of Rochester 2012-2014

- In charge of admissions, journal grader.
- Collaborate on ongoing program revisions.

Research Assistant, Lynda Powell, University of Rochester 2012

- Analyze preferences over representational styles of United States residents.

Consultant, 2 de Mayo Entertainment Consulting, Princeton, NJ 2011

- Create Python scripts to parse documents for information on media availability.
- Analyze efficiency of data documentation and transmission.

Consultant, SureTech, Princeton, NJ 2011

- Build portions of database management software.
- Review website development using PHP.

Research Assistant, Jim Johnson, University of Rochester 2008

- Document the influence of Elinor Ostrom on the impact of collective action and the allocation of scarce resources.

Research Assistant, Larry Rothenberg, University of Rochester 2008

- Investigate the evolution of gerrymandering in the United States.
- Research the legal history of court cases regarding gerrymandering.
- Analyze the impact of districting decisions on vote choice California from 1980 to 1990.

Statistical Analyst, Analysis and Inference, Swarthmore, PA 2006

- Analyze data related to court cases to determine baseline frequencies of relevant events.
- Write tutorials to introduce novice coders to R.

Grant Writer, National Hispanic University, San Jose, CA 2004

- Help create a robotics program for immigrant and first generation elementary school students focused on hands on learning.
- Write grant applications to fund program.
- Program successfully funded in September 2004.

TEACHING EXPERIENCE

Social Sciences Quantitative Laboratory

Swarthmore College, 2017-2025

Develop 32 modular lessons, each approximately 2 hours long, on data science skills.

Deliver 225 individual workshops to approximately 1,200 unique students.

Mentor student theses and data projects from conception to completion.

Course Designer & Instructor, Introduction to Data Science

Liberal Arts Consortium for Digital Innovation, 2018-2021

Co-design this innovative digital summer course with a liberal arts approach.

Develop innovative materials for and teach the “Data Viz in the Social Sciences” unit.

Design, implement, and manage a Slack environment to promote student engagement.

Course Designer & Lecturer, Data Visualization & Quantitative Methods in Social Science

Swarthmore College, Spring 2021

Course Designer & Lecturer, The U.S. Congress: People, Places and Policy

Swarthmore College, January Term 2021

Instructor, Analysis of Political Data I

Georgetown, Spring 2016

Instructor, Analysis of Political Data II

Georgetown, Spring 2016

Instructor, Introduction to Applied Game Theory

Georgetown, Fall 2015

Instructor, Race and Ethnicity in US Politics

Georgetown, Fall 2015

Instructor, Introduction to American Government

University of Rochester, Summer 2015

Instructor, Civil Liberties

SUNY Oswego, Spring 2015

Instructor, Inequality and Democracy

SUNY Oswego, Spring 2015

Head Teaching Assistant, Intro. to International Relations (Professor Hein Goemans)

University of Rochester, Spring 2014

Guest Lecturer Introduction to International Relations (Professor Hein Goemans)

University of Rochester, Spring 2014

“International Institutions and War,” “Asia’s Role,”

“Human Rights,” “Mid-term Synthesis”

Teaching Assistant, Introduction to International Relations (Professor Hein Goemans)

University of Rochester, Spring 2013

Teaching Assistant, Introduction to American Politics (Professor Gerald Gamm)

University of Rochester, Fall 2013

Teaching Assistant, Introduction to Political Philosophy (Professor James Johnson)

University of Rochester, Fall 2012

CONFERENCES and PRESENTATIONS

Stanford Linear Algebra and Optimization Seminar 2025, non-presenting coauthor

“Motivate & Compare the LSQR/PLS & TSVD/PCR Algorithms with Optimization”

Teaching and Learning Center Series 2024

“Computer Skills that Save Time: Introduction”

“Computer Skills that Save Time: Intermediate”

Social Sciences Quantitative Laboratory Lunch Series 2024

“Using Interactive 3D Graphics to Engage Students and Visualize Statistical Methods”

LACOL Consortium Workshop 2021

“LACOL Shared Course Initiative - Designing the Future”

LACOL Consortium Workshop 2020

“LACOL 2020 Summer Data Science Panel Discussion”

Blended Learning Conference 2020

“Setting the Environment for Interactive, Real Time, Blended Learning”

LACOL Liberal Arts Remote Teaching, March 2020

“Teaching Remotely in Zoom”

Midwest Political Science Association Annual Meeting 2019

“Accounting for Multicollinearity without Bias”

LACOL Consortium Workshop 2019

“Ethics and Data Science Panel” moderator

Blended Learning Conference 2019

“On Ramps for Data Science: Visualizing Voting for Trump”

Swarthmore College Economics Brown Bag Series 2019

“Directional Regression Analysis: Improving Efficiency and Interpretation in Multivariate Regressions with Highly Correlated Explanatory Variables”

Bryn Mawr’s Steering Committee 2019

“Data Science in the Liberal Arts”

LACOL Webinar 2018

“On Ramps and Scaffolds for Quantitative Skills”

LACOL 2018 Teaching with Tech Lightning and Thunder Round

“Highlighting Digital Tools for 3 Data Science Skills”

Bryn Mawr’s Data Intensive 2018

“Voting Data with R”

Bryn Mawr’s Data Intensive 2018

“Academic Researchers Discussion Panel”

American Political Science Association Annual Meeting 2016

“Forty Years of Inequality: Legislative History, Party, Education, and Income”

Georgetown Quantitative Models, Spring 2016

“Automated Content Analysis: Understanding Text as Data”

Midwest Political Science Association Annual Meeting 2016

“Education Matters: Four Decades of Legislative History, Party, Education, and Income”

Georgetown American Government Speaker Series, Spring 2016

“Race Matters: Tradeoffs in How Members of Congress Represent their Districts”

American Political Science Association Annual Meeting 2015

“Understanding Time Constraints & Policy: Legislation, Staffing Resources & Twitter”

Midwest Political Science Association Annual Meeting 2015

“Tradeoffs between Descriptive Representation, Policy & Communication”

Midwest Political Science Association Annual Meeting 2014

“Casework & Legislation: A Textual Analysis of Twitter, Facebook, and Press Releases”

Midwest Political Science Association Annual Meeting 2013

“Money Matters: The Influence of Affluence on Political Representation”

GRANTS AND AWARDS

Travel Award for Text as Data Conference, Northwestern University, 2014

Summer Research Assistant Fellowship, University of Rochester, 2014

Charles E. Lanni Summer Research Fellowship, University of Rochester, 2008, 2014

Excellence in Teaching by a Graduate Student, University of Rochester, 2013-2014

PEPR Research Assistant Grant, University of Rochester, 2012

Provost’s Fellowship, University of Rochester, 2007-2009, 2012-2013

SERVICE EXPERIENCE

Social Sciences Quantitative Laboratory Lunch Series

Swarthmore College, 2023-2024

CITO Search Committee,

Swarthmore College, Spring 2022

Visiting Assistant Professor Search, Sociology & Anthropology,

Swarthmore College, Fall 2021

Academic Advising and Support Continuity subcommittee,

Swarthmore College, 2020

Peer Assistants and Mentors subcommittee,

Swarthmore College, 2020

Propose & Co-organize,

LACOL Liberal Arts Remote Teaching Panels, March 2020

Cofound, Working Group,

University of Rochester, 2012 - 2015

- Cofounded a weekly workshop to provide support for the development of research ideas among female graduate students in political science.

Tutor, Carlson Library Tutoring, University of Rochester, 2014

- Tutored students from disadvantaged backgrounds in English, Math, History, and Economics.