

# Matthew James Denny

# Curriculum Vitae

Department of Political Science  
220 Pond Lab  
Pennsylvania State University  
University Park, PA 16802

Phone: +1-413-687-3553  
mdenny@psu.edu  
[www.mjdenny.com](http://www.mjdenny.com)  
[github.com/matthewjdenny](https://github.com/matthewjdenny)

## Education

### Pennsylvania State University

Ph.D., Political Science and Social Data Analytics, 2018 (expected)

*Dissertation: The Role of Bureaucratic Discretion in Congressional Politics*

*Committee:* Bruce Desmarais (chair), Burt Monroe, Michael Nelson, David Hunter (statistics),  
John Wilkerson (external), Hanna Wallach (external)

M.A., Political Science, 2017

*Fields: Methodology, American Politics*

### University of Massachusetts Amherst

M.A., Political Science, 2015

M.S., Resource Economics, 2013

B.A., Economics, Commonwealth Honors College, 2012

*Summa Cum Laude, Phi Beta Kappa, Departmental Honors*

## Research Interests

Political Methodology, Data Science, Congress, Bureaucracy, Text As Data, Network Analysis.

## Journal Articles

5. **Matthew J. Denny** and Arthur Spirling, (forthcoming). “Text Preprocessing For Unsupervised Learning: Why It Matters, When It Misleads, And What To Do About It”, *Political Analysis*. [\[preprint\]](#)
4. Paul E. Stillman, James D. Wilson, **Matthew J. Denny**, Bruce Desmarais, Shankar Bhamidi, Skyler Cranmer, and Zhong-Lin Lu. (2017). “Statistical Modeling of the Default Mode Brain Network Reveals a Segregated Highway Structure”, *Scientific Reports* ,7(11694), 1–14. [\[link\]](#)
3. James D. Wilson, **Matthew J. Denny**, Shankar Bhamidi, Skyler Cranmer, and Bruce A. Desmarais, (2017). “Stochastic weighted graphs: Flexible model specification and simulation”. *Social Networks*, 49, 37–47. [\[link\]](#)
2. James Ben Aaron, **Matthew J. Denny**, Bruce A. Desmarais, and Hanna Wallach. (2017). “Transparency by Conformity: A Field Experiment Evaluating Openness in Local Governments”. *Public Administration Review*, 77(1), 68–77. [\[link\]](#)
1. Angela C. M. de Oliveira, John M. Spraggon, and **Matthew J. Denny** (2016). “Instrumenting Beliefs in Threshold Public Goods.” *PLoS ONE*, 11(2), e0147043. [\[link\]](#)

## Peer Refereed Proceedings

1. Abram Handler, **Matthew J. Denny**, Hanna Wallach, and Brendan OConnor (2016). “Bag of What? Simple Noun Phrase Extraction for Text Analysis”, in: *Proceedings of the Workshop on Natural Language Processing and Computational Social Science at the 2016 Conference on Empirical Methods in Natural Language Processing* [\[link\]](#)

## Other Writing

1. **Matthew J. Denny**. “Text Processing in R”, *KDnuggets Tutorials*, 3/9/18. [\[link\]](#)

## Working Papers

5. Andreu Casas, **Matthew J. Denny**, and John Wilkerson. “More Effective than We Thought: Accounting for Legislative Hitchhikers Reveals a More Inclusive and Productive Lawmaking Process”, *R&R at AJPS*, [ssrn.com/abstract=3098325](https://ssrn.com/abstract=3098325), 2018.
4. **Matthew J. Denny**. “More than Control: Partisan Differences in the Use of Statutory Constraints on the Bureaucracy”, *Under Review*, 2018.
3. Paul E. Stillman, James D. Wilson, **Matthew J. Denny**, Bruce A. Desmarais, Skyler J. Cranmer, and Zhong-Lin Lu. “A Consistent Organizational Structure Across Multiple Functional Subnetworks of the Human Brain”, *Under Review*, 2018.
2. **Matthew J. Denny**, “Systemic Risk and the Structure of International Lending”, 2018.
1. **Matthew J. Denny**, “The Importance of Generative Models for Assessing Network Structure”, [ssrn.com/abstract=2798493](https://ssrn.com/abstract=2798493), 2016.

## Presentations

16. Matthew J. Denny. “Allies or Enemies? Agency Goals, Party Ideology, and The Politics of Statutory Constraint”
  - *Midwest Political Science Association Conference*, Chicago, 2018.
15. Matthew J. Denny, Andreu Casas, and John Wilkerson. “How laws are made: A computational approach to studying the legislative markup process”
  - *Midwest Political Science Association Conference*, Chicago, 2018.
14. Matthew J. Denny. “When the Lawyers Get Involved: Assessing the Use of Legal Language in Legislative Texts”
  - *Midwest Political Science Association Conference*, Chicago, 2018.
  - *American Political Science Association Conference*, Boston, 2018.
13. Matthew J. Denny “The Politics of Bureaucratic Constraint: How Congress Uses Legal Language To Achieve Political Goals”
  - *New Faces In Political Methodology IX*, Penn State, 2017.
  - *PolMeth XXXIV* (poster), University of Wisconsin-Madison, 2017.
12. Matthew J. Denny and Arthur Spirling “Text Preprocessing For Unsupervised Learning: Why It Matters, When It Misleads, And What To Do About It”
  - *NYU NLP and Text as Data Speaker Series*, NYU, 2017.
  - *Midwest Political Science Association Conference*, Chicago, 2017.
  - *PolMeth XXXIV* (talk), University of Wisconsin-Madison, 2017.

11. Matthew J. Denny and Arthur Spirling “Assessing the Consequences of Text Preprocessing Decisions”
  - *Text As Data*, Northeastern, 2016. [\[link\]](#)
10. Matthew J. Denny “The Importance of Generative Models for Assessing Network Structure”
  - *Midwest Political Science Association Conference*, Chicago, 2016.
  - *Political Networks Conference*, St. Louis, 2016.
9. Matthew J. Denny, James Ben Aaron, Hanna Wallach, and Bruce Desmarais “Reading Between The Emails: Gendered Patterns of Communication in Local Government”
  - *Text As Data*, NYU, 2015.
  - *Midwest Political Science Association Conference*, Chicago, 2016.
8. James D. Wilson, Matthew J. Denny, Shankar Bhamidi, Skyler Cranmer, Bruce Desmarais. “Complex Stochastic Weighted Graphs: Flexible Specification and Simulation”
  - (poster) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)
7. Matthew J. Denny, Brendan O’Connor, Hanna Wallach “A Little Bit of NLP Goes A Long Way: Finding Meaning in Legislative Texts with Phrase Extraction”
  - *Text As Data*, Northeastern, 2016.
  - *Midwest Political Science Association Conference*, Chicago, 2015.
6. Matthew J. Denny, Bruce A. Desmarais, Hanna Wallach “Hierarchical Topic-Partitioned Multinetwork Embeddings: Modeling Social Structure and Content across a Sample of Communication Networks”
  - *Southern Political Science Association Conference*, New Orleans, 2015.
  - *Midwest Political Science Association Conference*, Chicago, 2015.
  - (talk) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)
5. Matthew J. Denny “Big Data Analytics in R”
  - Invited Talk, *UMass Graduate Researchers Interested in Data (GRID)*, 2015. [\[link\]](#)
4. Matthew J. Denny, “Relational Theory and Models for Weighted Financial Networks”
  - *CAFCA/PERI Workshop on Financialization*, UMass Amherst, 2014. [\[link\]](#)
3. Matthew J. Denny, “Influence in the United States Senate”
  - *Political Networks Conference*, Montreal, 2014. [\[link\]](#)
  - *Midwest Political Science Association Annual Meeting*, Chicago, 2014.
  - *International Network for Social Network Analysis: Sunbelt Conference*, 2014.
  - (talk) *International Conference on Computational Social Science*, Helsinki, 2015. [\[link\]](#)
2. Matthew J. Denny, James Aaron, Hanna Wallach, Bruce A. Desmarais, “The Bias and Efficiency of Internal Local Government Communication Patterns”
  - *PolMeth XXXI* (poster), Athens GA, 2014. [\[link\]](#)
  - *Political Networks Conference*, Montreal, 2014.
  - *Midwest Political Science Association Annual Meeting*, Chicago, 2014.
1. Matthew J. Denny, “Community Structure and its Implications for the Evolution of Cooperation”
  - *International Network for Social Network Analysis: Sunbelt Conference*, 2012 [\[link\]](#)

## Grants, Fellowships, and Awards

12. Poster Award, Penn State Graduate Exhibition, 2018.
11. Best Poster Award, Political Networks Conference, 2017.
10. RGSO Dissertation Research Grant, Penn State, 2017.
9. Best Political Science Master's Essay 2015-2016, Department of Political Science, Penn State, 2016.
8. Big Data Social Science IGERT Fellow (NSF award DGE-1144860), 2015–2018.
7. Political Networks Conference Travel Grant, 2014, 2016, 2017.
6. Department of Political Science Summer Research and Writing Grant, 2014 (UMass)
5. Alan L. and Carol S. LeBovidge Undergraduate Research Fellowship, 2011 (UMass)
4. Commonwealth College Honors Research Grant, 2011 (UMass)
3. Economics Department Summer Course Development Fellowship, 2011 (UMass)
2. William F. Field Alumni Scholar Award, 2010 (UMass)
1. Economics Achievement Award, 2009 (UMass)

## Consulting and Research Experience

9. Data Scientist, [Skopos Labs](#), 2017–Present.
8. Research Assistant to Professor David Hunter, 2016–2017.
7. Visiting Scholar (Supervised by Arthur Spirling), Department of Political Science and Center for Data Science, New York University, 2016–2017.
6. Research Assistant to Professors Hanna Wallach and Bruce Desmarais, Fall 2013 – Present
5. Methods Consultant, UMass Institute for Social Science Research, Fall 2013 – 2015
4. Programming Consultant, USDA Forrest Service, Summer 2013
3. Research Assistant to Professor Daniel Lass, 2012–2013
2. Research Assistant to Professor Gerald Epstein, Fall 2012
1. Regional Economic Impact Analysis in IMPLAN for Colorado Foundation for Universal Healthcare, Fall 2012 [\[link\]](#)

## Teaching Experience

19. Instructor, year-long weekly Social Data Analytics workshop series, “Introduction to Data Science (with R)”, 2017-2018. [\[link\]](#)
18. Instructor for SAGE Campus 4-week online course, “Practical Data Management with R, for Social Scientists”, 2017. [\[link\]](#)
17. 2-Day Workshop, “Practical Web and Text Scraping”, UMass ISSR Summer Methodology Workshops, May 24-25, 2016-2018. [\[link\]](#)

16. 2-Day Workshop, “Data Management in R”, UMass ISSR Summer Methodology Workshops, May 22-23, 2016-2018. [\[link\]](#)
15. IGERT Workshops, “Text as Data” and “Parallel Computing”, Penn State University, November 30, 2015.
14. 3-Day Workshop, “Data Science and Big Data Analytics”, ICPSR Session II, July 2015. [\[link\]](#)
13. 3-Day Workshop, “Data Science and Advanced Data Management”, UMass ISSR Methodology Summit, June 1-3, 2015. [\[link\]](#)
12. UMass ISSR Workshop, “Intermediate R”, 2015 [\[link\]](#)
11. UMass ISSR Workshop, “Intermediate Social Network Theory”, 2015 [\[link\]](#)
10. UMass ISSR Workshop, “Introduction to R”, 2014, 2015 [\[link\]](#)
9. Hubert M. Blalock Lecture, “High Performance Computing and Big Data Analytics: An Introduction and Practical Applications”, ICPSR Session II, July 2014. [\[link\]](#)
8. Teaching Assistant, “Network Analysis - Advanced Topics”, ICPSR Session II, 2013, 2014, 2015.
7. UMass ISSR Workshop, “Introduction to High Performance Computing”, 2014 [\[link\]](#)
6. UMass ISSR Workshop, “Introduction to Social Network Theory”, 2014, 2015 [\[link\]](#)
5. UMass ISSR Workshop, “Advanced Data Management in R”, 2013, 2015 [\[link\]](#)
4. UMass ISSR Workshop, “Advanced  $\LaTeX$  and BibTeX”, 2013, 2014 [\[link\]](#)
3. UMass ISSR Workshop, “An Introduction to  $\LaTeX$ ”, 2013, 2014 [\[link\]](#)
2. Teaching Assistant, Intermediate Econometrics, Spring 2013
1. Co-Instructor - Advanced Economics of Cooperative Enterprise, Fall 2011

## Software

3. **[R Package: phrasemachine]** Matthew J. Denny, Abram Handler and Brendan O’Connor. *phrasemachine: Simple Phrase Extraction* [\[CRAN\]](#)
2. **[R Package: preText]** Matthew J. Denny and Arthur Spirling. *preText: Diagnostics to Assess the Effects of Text Preprocessing Decisions* [\[CRAN\]](#)
1. **[R Package: GERGM]** Matthew J. Denny, James D. Wilson, Skyler Cranmer, Bruce A. Desmarais, and Shankar Bhamidi. *GERGM: Estimation and Fit Diagnostics for Generalized Exponential Random Graph Models* [\[CRAN\]](#)

## Datasets

1. Cassie McMillan, Sayali Phadke, Mitchell Goist and Matthew J. Denny (2017). *Comparative Networks Dataset (v 1.0.2)*. [\[Website\]](#)

## **Invited Workshops, Non-Academic Talks**

4. Congressional Rules and Procedures Conference, University of Georgia, 2018.
3. “Human Guidance in Natural Language Processing”, Caterpillar Inc. Information Analytics Seminar Series, 2018.
2. Social Science Foo Camp, Facebook HQ, 2018.
1. Text Analysis Software Developers Workshop, 2017, 2018.

## **Service**

4. Program Committee, NLP + CSS at ACL 2017.
3. Panel Organizer, “UMass ISSR Seminar: CV Building Blocks: Content and Format”, Fall 2014 [\[link\]](#)
2. Panel Organizer, “UMass ISSR Seminar: Creating a Convincing CV”, Spring 2014 [\[link\]](#)
1. Reviewer For: American Journal of Political Science, American Political Science Review, American Politics Research, Journal of Politics, Socius, Space Policy, International Sociology, Political Science Research and Methods, Political Analysis

## **References**

### **Bruce Desmarais – Associate Professor, Political Science**

Penn State University

Phone: (814)-863-8859

Email: bdesmarais@psu.edu

### **Burt Monroe – Professor, Political Science**

Penn State University

Phone: (814)-865-9215

Email: burtmonroe@psu.edu

### **John Wilkerson – Professor, Political Science**

University of Washington

Email: jwilker@uw.edu

### **Michael Nelson – Assistant Professor, Political Science**

Penn State University

Email: mjn15@psu.edu