

# CASSANDRA WOLOS PATTANAYAK

Wellesley College  
Clapp 238, 106 Central Street, Wellesley, MA 02482  
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- EMPLOYMENT**     **Director, Quantitative Analysis Institute, Wellesley College**, June 2013-present.  
**Visiting Lecturer, Wellesley College**, June 2013-present.
- College Fellow in Statistics, Harvard University Statistics Department**, July 2011-May 2013.
- EDUCATION**     **Ph.D. in Statistics, Harvard University**, November 2011.  
                  Advisor: Donald B. Rubin  
                  Dissertation: “The critical role of covariate balance in causal inference with randomized experiments and observational studies.”
- A.M. in Statistics, Harvard University**, June 2008.
- A.B. in Statistics, Harvard University**, *magna cum laude*, June 2006.  
                  Citation in Russian Language  
                  Advisor: Donald B. Rubin  
                  Thesis: “Matching methods for small sample size observational studies: Reducing bias in the Pennsylvania Value-Added Assessment System Pilot Program Evaluation.”
- ADDITIONAL RESEARCH EXPERIENCES**
- Randomized evaluations of legal aid. With D. James Greiner, Harvard Law School. 2007-present.  
Bayesian approach to Daily News Alerting Algorithm. With Robert M. Bell, AT&T Labs.  
Florham Park, NJ, Summer 2006.
- Reading First Impact Study. Intern, Abt Associates. Cambridge, MA, Summer 2005.  
Harvard Family Research Project and Family Involvement Network of Educators, Harvard Graduate School of Education. 2003-2006.
- Longitudinal study of Harvard College Class of 2006. With Richard J. Light, Harvard Graduate School of Education. 2002-2006.
- HONORS**
- Certificate of Teaching Excellence for Statistics 98, Harvard University, 2012.  
Certificate of Teaching Excellence for Economics 1127, Harvard University, 2012.  
Best Reviewers of 2010, *Pharmacoepidemiology and Drug Safety*, 2011.  
Winner, Promoting the Practice and Profession of Statistics Video Competition, American Statistical Association, 2011. With Paul T. Edlefsen and Xiao-Li Meng. One of three selected videos. Featured in *Significance Magazine*.  
Certificate of Distinction in Teaching for Economics 1127, Harvard University, 2011.  
Selected for Designing the Course of the Future, Derek Bok Center for Teaching and Learning, Harvard University, 2011.  
David K. Pickard Award for Teaching Fellows, Harvard University Statistics Department, 2010.  
Certificate of Distinction in Teaching for Economics 1127, Harvard University, 2010.  
Certificate of Distinction in Teaching for Statistics 245, Harvard University, 2010.  
Certificate of Distinction in Teaching for Statistics 305, Harvard University, 2009.  
Mu Sigma Rho, National Statistics Honor Society, inducted 2009.  
Post-Qualifying Talk Award, Harvard University Statistics Department, 2009.  
AT&T Labs Fellowship, 2006-2009.  
Harvard College Scholar, 2006.  
Robert C. Byrd Scholarship, 2002-2006.  
Founders’ Scholarship, Golub Foundation, 2002-2006.

PAPERS

- Pattanayak, C. W.**, Rubin, D. B., & Zell, E. R. (In preparation, available on SSRN). "A potential outcomes, and typically more powerful, alternative to 'Cochran-Mantel-Haenszel.'"
- Greiner, D. J., **Pattanayak, C. W.**, & Hennessy, J. (Submitted). "How effective are limited legal assistance programs? A randomized experiment in housing."
- Turpie, A. G. G., Haas, S., Kreutz, R., Mantovani, L. G., **Pattanayak, C. W.**, Holberg, G., Jamal, W., Schmidt, A., van Eickels, M., & Lassen, M. R. (Submitted). "Rivaroxaban for thromboprophylaxis after major orthopedic surgery in routine clinical practice."
- Greiner, D. J., **Pattanayak, C. W.**, & Hennessy, J. (2013). "The limits of unbundled legal assistance: A randomized study in a Massachusetts District Court and prospects for the future." *Harvard Law Review*, 126(4), 901-989.
- Greiner, D. J., & **Pattanayak, C. W.** (2012). "Randomized evaluation in legal assistance: What difference does representation (offer and actual use) make?" *Yale Law Journal*, 121(8), 2118-2214.  
Highlighted by:  
 Selbin, J., Charn, J., Alfieri, A., & Wizner, S. (2012). Service delivery, resource allocation, and access to justice: Greiner and Pattanayak and the research imperative. *Yale Law Journal Online*, 122(45).  
 Online symposium at ConcurringOpinions.com (March 28-29, 2011).  
 Ian Ayres, Freakonomics Blog Post, *New York Times* (December 28, 2010).  
 Ezra Klein, Blog Post, *Washington Post* (December 23, 2010).
- Pattanayak, C. W.**, Rubin, D. B., & Zell, E. R. (2011). "Propensity score methods for creating covariate balance in observational studies." *Rev. Esp. Cardiol.*, 64(10), 897-903.

MANUSCRIPTS  
IN PREPARATION

- Pattanayak, C. W.**, Macaluso, M., Kulkarni, A., Seifer, D. B., Jain, T., Jamieson, D. J., & Rubin, D. B. "Effect of elective single versus double embryo transfer for in vitro fertilization: A propensity score design that parallels a large randomized experiment."
- Pattanayak, C. W.** "Propensity score design for causal inference in non-randomized Phase IV trials: Application to a venous thromboembolism prophylaxis after orthopedic surgery."
- Pattanayak, C. W.** "Matching quality evaluation." Invited for inclusion in *Propensity Score Analysis: Fundamentals, Developments, and Extensions*, edited by Wei Pan and Haiyan Bai. Guilford Press.

REPORTS

- Caspe, M., Lopez, M. E., & **Wolos, C.** (Winter 2006/2007). *Family involvement in elementary school children's education*. Cambridge, MA: Harvard Family Research Project.
- Weiss, H. B., Faughnan, K., Caspe, M., **Wolos, C.**, Lopez, M. E., & Kreider, H. (2004). *Taking a closer look: A guide to online resources on family involvement*. Cambridge, MA: Harvard Family Research Project.

RESEARCH  
PROJECTS  
SUPERVISED

- Lena Ye. "The aftermath of attention: Using search engine data to model stock price movements in the airline industry with multivariate time series methods." Undergraduate Honors Thesis in Statistics, 2012-2013.
- Jane Choi. "The effect of early admission and early entry into Head Start on dual language learners." Supervised Reading and Research in Applied Math, 2012.

Kristen Hunter. "A little more stratification, a little less action: Principal stratification approach to investigating the effect of intrapartum antibiotic prophylaxis on late-onset GBS."  
Undergraduate Honors Thesis in Statistics, co-advised by Donald B. Rubin, 2011-2012.

COURSES  
TAUGHT

**Wellesley College**

Quantitative Reasoning 170: Causation (First Year Seminar).  
Fall 2013.  
Quantitative Analysis Institute Summer Program.  
Summer 2013.

**Harvard University**

Economics 1127: Statistical Methods for Evaluating Causal Effects.  
(Cross-listed in statistics department).  
Spring 2013, Spring 2012.  
Statistics 98: Junior Tutorial in Statistics (jointly taught with David P. Harrington).  
Spring 2013, Spring 2012.  
Statistics 139: Statistical Sleuthing through Linear Models.  
Fall 2012, Fall 2011.  
Empirical Reasoning 16: Real-Life Statistics.  
Fall 2012,  
Fall 2011 (jointly taught with Xiao-Li Meng),  
Summer 2011 (as "S-16," jointly taught with Xiao-Li Meng).

TEACHING  
ASSISTANTSHIPS

**Harvard University**

Economics 1127: Statistical Methods for Evaluating Causal Effects.  
Spring 2011, Spring 2010.  
Statistics 245: Statistics and Litigation.  
(Cross-listed at Harvard Law School).  
Spring 2010.  
Statistics 305: Statistical Fallacies and Paradoxes: A Cartoon Guide  
(Graduate Seminar in General Education).  
Fall 2009.  
Statistics 105: Real-Life Statistics: Your Chance for Happiness (Or Misery).  
Spring 2009.  
Quantitative Reasoning 33: Causal Inference.  
Spring 2008.

**Johns Hopkins University Center for Talented Youth**

Probability and Game Theory, Skidmore College, Saratoga Springs, NY.  
Summer 2004.  
Individually Paced Math Sequence, Stanford University, Stanford, CA.  
Summer 2003.

COURSES  
DESIGNED

Quantitative Analysis Institute Summer Program, 2013.  
As founding director of QAI, designed course for summer research students on  
fundamental statistical principles and practical data analysis skills.

Real-Life Statistics: Your Chance for Happiness (Or Misery), 2007-present.  
As member of Xiao-Li Meng's "Happy Team," launched new pedagogical approach and  
created syllabi, lectures, and assignments for summer (Stat S-16), General Education  
(EMR 16), and statistics concentrator (Stat 105) versions of statistical literacy course.

Statistics 98: Junior Tutorial in Statistics, Spring 2012, Spring 2013.

With David P. Harrington, designed tutorial for junior year statistics concentrators, focusing on reading, writing, presenting, and research in statistics.

Designing the Course of the Future, Spring 2011.

Selected by Derek Bok Center for Teaching and Learning at Harvard University for semester-long seminar exploring applications of pedagogical research to classroom learning and course development.

Statistics 305: Statistical Fallacies and Paradoxes: A Cartoon Guide (Graduate Seminar in General Education), Fall 2009.

Proposed, designed, and served as teaching fellow for graduate student seminar that explored principles behind statistical paradoxes through research, discussion, and development of pedagogical resources for General Education course, Real-Life Statistics.

#### CONSULTING EXPERIENCES

Bayer HealthCare Pharmaceuticals, Berlin, Germany, 2010-present.

New York University Hospital for Joint Disease, Department of Orthopaedic Surgery, New York, NY, 2010-present.

Centers for Disease Control and Prevention, Division of Reproductive Health, Atlanta, GA, 2007-present.

Kempthorne Law, Salem, MA, 2010.

Ropes and Gray LLP, Boston, MA, 2010.

Cass Sunstein, Harvard Law School, Cambridge, MA, 2008.

#### INVITED PRESENTATIONS

“Getting it right in comparative effectiveness research: Design matters!” Health Policy session at Joint Statistical Meetings, Montreal, QC, August 2013.

“A potential outcomes, and typically more powerful, alternative to ‘Cochran-Mantel-Haenszel.’”

Atlantic Causal Inference Conference, Cambridge, MA, May 2013.

Applied Statistics Workshop, Harvard University Institute of Quantitative Social Science, Cambridge, MA, November 2012.

“A powerful, potential outcomes method for estimating any estimand across multiple groups.”

Society for Research on Educational Effectiveness Spring Conference, Washington, DC, March 2013. Poster.

“Propensity score matching to assess the effect of single versus double embryo transfer for in vitro fertilization.” Center for Clinical and Translational Science and Training Grand Rounds, Cincinnati Children’s Hospital, Cincinnati, OH, March 2012.

“The limits of unbundled legal assistance: A randomized study in a Massachusetts District Court and prospects for the future.” Yale Law Journal, New Haven, CT, March 2012.

“How effective are limited legal assistance programs? A randomized experiment in housing.”

Conference on Empirical Legal Studies, Chicago, IL, November 2011.

“What difference representation?” Applied Statistics Workshop, Harvard University Institute of Quantitative Social Science, Cambridge, MA, February 2011.

“Practical applications of propensity score analysis.” Part of Observational Studies Course presented at Bayer HealthCare with Donald B. Rubin and Elizabeth R. Zell. Berlin, Germany, December 2009 and July 2010.  
Wuppertal, Germany, March 2009.  
Pine Brook, NJ, January 2009.

“Diagnostics for covariate balance: Propensity score analyses at the CDC.” Applied Statistics Workshop, Harvard University Institute of Quantitative Social Science, Cambridge, MA, February 2010.

CONTRIBUTED  
PRESENTATIONS

“A potential outcomes, and typically more powerful, approach than ‘Cochran-Mantel-Haenszel’ and related methods.” Joint Statistical Meetings, San Diego, CA, July 2012.

“Diagnostics for propensity score matching.” Joint Statistical Meetings, Washington, D.C., August 2009.

“A propensity score analysis to improve covariate balance in a randomized experiment.” Joint Statistical Meetings, Denver, CO, August 2008. Poster.

PROFESSIONAL  
ACTIVITIES

Reader Six undergraduate senior honors theses, 2012, 2013.

Member Master’s program admissions committee, Harvard University Statistics Department, 2012, 2013.

Advisor Three master’s students, Harvard University Statistics Department, 2012-2013.

Mentor Harvard Graduate Women in Science and Engineering Mentoring Program, 2012-2013.

Reviewer Statistics in Medicine, 2012.  
Psychological Methods, 2012.  
The Harvard Undergraduate Research Journal, 2012.  
Yale Law Journal Online, 2011.  
Journal of Consulting and Clinical Psychology, 2011.  
Pharmacoepidemiology and Drug Safety, 2010.

Member Society for Research on Educational Effectiveness, 2013-present.  
Society for Empirical Legal Studies, 2011-present.  
Mu Sigma Rho, National Statistics Honor Society, 2009-present.  
Institute of Mathematical Statistics, 2007-present.  
American Statistical Association, 2005-present.

Contributing Writer, Social Science Statistics Blog, Harvard University Institute of Quantitative Social Science, 2006-2007.

MUSIC  
(RECENT)

Trombonist Mercury Orchestra, Cambridge, MA, Summers 2011-2013.  
Dudley House Orchestra, Harvard University, Cambridge, MA, 2006-present.  
Bay Colony Brass, Greater Boston, MA, 2007-2011.  
Board Member and Treasurer, Bay Colony Brass, 2008-2010.