Curriculum Vitae October 2014

## **DONALD B. RUBIN**

University Address:	John L. Loeb Professor of Statistics Department of Statistics Harvard University 1 Oxford Street Cambridge, MA 02138
Email:	rubin@stat.harvard.edu
Education:	
A.B. 1965 magna cum laude Phi Beta Kappa	Princeton University Major: Psychology Advisor: Professor Lawrence A. Pervin Thesis: "Dissatisfaction with College and Tendency to Drop Out of College as a Function of Value Dissonance"
M.S. 1966	Harvard University Major: Computer Science Advisor: Professor Anthony G. Oettinger
Ph.D. 1970	Harvard University Major: Statistics Advisor: Professor William G. Cochran Thesis: "The Use of Matched Sampling and Regression Adjustment in Observational Studies"

# Faculty Positions at Harvard University:

2002-present	John L. Loeb Professor of Statistics.
2000-2004 & 1985-1994	Chairman, Department of Statistics.
2003-present	Faculty Associate, Center for Basic Research in the Social Sciences.
1984-2002	Professor, Department of Statistics.
1999-2000	Chairman, Department of Statistics' Senior Search Committee.
1997-2000 & 1985-1991	Director of Graduate Studies, Department of Statistics.
1998-present	Member, Standing Committee on Health Policy, Harvard University.
1997-2000	Faculty Staff, Program on Educational Policy and Governance.

## **Other Professional Positions:**

1999-2001	Fellow in Theoretical and Applied Statistics, National Bureau of Economic Research, Cambridge, Massachusetts.
1983-Present	Research Associate, NORC, Chicago, Illinois.
1982-1984	Professor, Department of Statistics and Department of Education, The University of Chicago, Illinois.
1982	Visiting Professor (February, April), Department of Mathematics, University of Texas at Austin.
1981-1982	Visiting Professor, Mathematics Research Center, University of Wisconsin at Madison.
1981-2008	President, Datametrics Research, Inc., Waban, Massachusetts.
1980-1981	Director (December, January), Division of Statistics and Applied Mathematics, Office of Radiation Programs, U.S. Environmental Protection Agency, Washington, D.C. (Senior Executive Service 4).
1981	Senior Visiting Fellow, Center for Applied Statistics, University of Lancaster, England.
1980-1982	Senior Statistical Research Advisor, Educational Testing Service, Princeton, New Jersey.
1979	Senior Visiting Fellow, Center for Applied Statistics, University of Lancaster, England.
1979	Visiting Lecturer (Spring Term), Department of Statistics, Princeton University, Princeton, New Jersey.
1978	Visiting Lecturer (Spring Term). Department of Statistics, Harvard University, Cambridge, Massachusetts.
1976	Visiting Associate Professor (Winter and Spring Quarters), Department of Applied Statistics, University of Minnesota, St. Paul, Minnesota.
1975-1979	Chairman, Statistics Group, Educational Testing Service, Princeton, New Jersey.
1975	Visiting Scholar (Winter Quarter), Department of Statistics, University of California at Berkeley.
1971-1974	Visiting Lecturer, Department of Statistics, Princeton University, Princeton, New Jersey.
1971-1975	Research Statistician, Educational Testing Service, Princeton, New Jersey.
1970-1971	Lecturer on Statistics, Department of Statistics, Harvard University, Cambridge, Massachusetts.
1969-1970	Research Assistant for Professor William G. Cochran, Department of Statistics, Harvard University, Cambridge, Massachusetts.

1968-1969	Teaching Fellow in Statistics for Professor Frederick Mosteller, Research Assistant for Professor Frederick Mosteller, Department of Statistics, Harvard University, Cambridge, Massachusetts.
1967-Present	Statistical consultant on various projects for governmental agencies, research organizations, and university faculty. Details available upon request.
1967-1968	Research Assistant for Professor Lawrence Stolurow, Computer Aided Instruction Laboratory, Harvard University, Cambridge, Massachusetts.
1966-1967	Teaching Fellow in Computer Science for Mr. George Mealey, Department of Applied Mathematics, Harvard University, Cambridge, Massachusetts.
1966	Research Assistant for Professor Lawrence A. Pervin (Summer), Department of Psychology, Princeton University, Princeton, New Jersey.
1966	Research Assistant for Professor John W. Tukey (Summer), Department of Mathematics, Princeton University, Princeton, New Jersey.
1965	NSF Fellowship (Summer) - Research with Professor Lawrence A. Pervin, Department of Psychology, Princeton University, Princeton, New Jersey.
1964	NSF Fellowship (Summer) - Research with Professor Lawrence A. Pervin, Department of Psychology, Princeton University, Princeton, New Jersey.
1963	Assistant Technician (Summer), Armour Research Foundation, Illinois Institute of Technology, Chicago, Illinois.
1962	Assistant Technician (Summer), Armour Research Foundation, Illinois Institute of Technology Chicago, Illinois.

## **Professional Activities:**

1975-1979	Associate Editor, Theory and Methods, <u>The Journal of the American Statistical</u> <u>Association</u> .
1975-1979	Associate Editor, Book Reviews, <u>The Journal of the American Statistical Association</u> .
1975-1980	Organizational Representative for the Institute of Mathematical Statistics at Educational Testing Service.
1976-1979	Associate Editor, Journal of Educational Statistics.
1979-1990	Corresponding Associate Editor, The Behavioral and Brain Sciences.
1976-1979	Reviewer for Mathematical Reviews.
1977-1978	Member, Committee on Privacy and Confidentiality, American Statistical Association.
1977-1983	Member, Panel on Incomplete Data, Committee for National Statistics, National Academy of Sciences. Chairman, Theoretical Subpanel. Member, Steering Committee.
1979	Editor Elect, The Journal of the American Statistical Association.

1980-1982	Coordinating Editor and Applications Editor, <u>The Journal of the American</u> <u>Statistical Association</u> .
1980-1982	Member, Board of Directors, American Statistical Association.
1980-1982	Member, Publications Committee, American Statistical Association.
1981-1985	Member, Social Science Research Council Working Group on Procedures for Imputing Occupation Codes on Census Public-Use Files.
1981	Member, National Academy of Sciences Review Panel on Statistical Methodology of Coleman's Report on the Efficacy of Public vs. Private Schools.
1983-1989	Member, National Academy of Sciences Committee on the Performance of Military Personnel.
1983-1984	Member, National Academy of Sciences Committee on Indicators of Pre-College Science and Mathematics Education.
1983-1984	Member, Ad Hoc Committee to Develop Guidelines for W.G. Cochran Memorial Award, American Statistical Association.
1985-1995	Consulting Editor to Chapman and Hall Publishers and General Editor with Cox, Hinkley, Reid, and Silverman of Chapman and Hall's series "Monographs on Applied Statistics and Probability."
1985-1986	Member, National Academy of Sciences Working Group on Statistical Analysis, Committee on Basic Research in the Behavioral and Social Sciences.
1985-1990	Member, Advisory Committee for the National Science Foundation's section on "Measurement Methods and Data Resources."
1988-1993	Associate Editor, Survey Methodology.
1989-1992	Council Member, Institute for Mathematical Statistics.
1989-1992	Member, National Academy of Sciences Committee on National Statistics.
1989-1992	Member, Panel on Confidentiality of Data, National Academy of Sciences, Committee on National Statistics
1990-1992	Member, Panel on Bilingual Education, National Academy of Sciences, Committee on National Statistics
1990-1994	Chair-elect/Chairman/Past Chairman, American Association for the Advancement of Science's Section U: Statistics
1991-1994	Member, Data Monitoring Review Board, Project "Altering Caesarean-Section Trends," Brigham & Women's Hospital, Boston
1991-1995	Statistical Editor, International Journal of Psychiatry in Medicine
1992-1994	Member, Ad Hoc Advisory Panel/Technical Panel for Survey of Earned Doctorates, NSF/NIH/USED/NEH/USDA/NRC
1992-1994	Member, ex officio, Corporation of National Institute of Statistical Sciences

1992-1995	Guest Editor, <u>Statistica Sinica</u> for the theme topic "The EM Algorithm", <u>5</u> , 1, pp. 1-107.
1992-1995	Associate Editor, <u>Biometrika</u>
1992-1996	Member AMS-IMS-MAA (American Mathematical Society-Institute for Mathematical Statistics-Mathematical Association of America) Data Committee
1993-1998	American Representative on the Elections Committee for Fellows for the International Statistical Institute
1993-2004	Associate Editor, Statistica Sinica
1995-1998	Guest Editor, <u>Statistica Sinica</u> for the theme topic "Statistical Issues in Educational Testing", Vol. 8, 1998, pp. 647-747.
1995-1998	Member, Committee for Fellows for the Institute of Mathematical Statistics
1995-1996	Member, Panel on Statistics in the 21st Century, Committee on Applied and Theoretical Statistics, National Academy of Sciences
1995	Member, Visiting Committee for Department of Statistics, Pennsylvania State University
1995	Member, Visiting Committee for Department of Biostatistics, University of California, Los Angeles
1996	Member, Nominating Committee for Committee on National Statistics, National Academy of Sciences
1996	Member, Census Blue Ribbon Panel, American Statistical Association
1996	Member, Task Force on Statistical Inference, American Psychological Association
1996	Member, Advisory Board, Program Project Grant "Surgery, Immunology and Immunotherapy of Cancer", John Wayne Cancer Institute, UCLA Medical School
1996-2001	Member, Scientific Advisory Board, Pharsight Corporation, Palo Alto, CA
1996-1999	Chair Elect, Chair, Past Chair, Section on Survey Research Methods, American Statistical Association
1997-2000	Member, Committee on Award for Outstanding Statistical Application, American Statistical Association
1997	Member, Visiting Committee for the Department of Statistics, Columbia University.
1998-2002	Member, Statistical Advisory Board, Statistical Solutions, Cork, Ireland.
1999-2002	Member, Samuel S. Wilks Medal Committee, American Statistical Association.
2000-2003	Member, Working Group on Data Confidentiality and Data Dissemination, Institute for Social Research, University of Michigan.
2001-2002	Member, Centers for Disease Control and Prevention Panel on Study Design for Anthrax Vaccine.

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2002	Member, Panel on Reputational Measures of Academic Departments and Data Presentation, National Academy of Sciences.
2006	Chair-Elect, Section on Epidemiology, American Statistical Association.
2007	Research Fellow, IAB (Institute for Employment Research), Nuremburg, Germany.
2009-2015	Member, Census Advisory Committee, American Statistical Association.
2011-2014	Research Fellow, Institute for the Study of Labor (IZA), Bonn, Germany.
2012-2013	Member, Membership Panel, Class I, Section 1 (Mathematics), American Academy of Arts and Sciences.
2012-2015	Invited Participant, Council of Scientific Presidents (CSSP) R&D Division Research Project, "Creative Heuristics Enabling Strategic Success."
2013-	Honorary Editor, Communications for Statistical Applications and Methods, Korean International Statistical Society

## Fellowships, Honors, and Awards, Pre-Ph.D.:

1961	Offer of three-year degree with advanced placement in physics, mathematics, chemistry and history, Princeton University.
1961-1965	Dean's List, all terms, Princeton University.
1964	Howard Crosby Warren Award for outstanding junior psychology major, Princeton University.
1964	NSF Undergraduate Summer Research Fellowship, Department of Psychology, Princeton University.
1965	Howard Crosby Warren Award for outstanding senior psychology major, Princeton University.
1965	NSF Undergraduate Summer Research Fellowship, Department of Psychology, Princeton University.
1965	Phi Beta Kappa, Princeton University.
1965	Woodrow Wilson Graduate Fellowship.
1965-1970	NSF Graduate Fellowships.

## Fellowships, Honors, and Awards, Post-Ph.D.:

1977	Elected Fellow of American Statistical Association.
1977	Elected Fellow of Institute of Mathematical Statistics.
1977-1978	John Simon Guggenheim Fellowship. Studies in Mathematical and Theoretical Statistics: Evaluating the Quality of Causal Inferences in Observational Studies.
1984	Elected Fellow of American Association for the Advancement of Science.
1984	Elected Member of International Statistical Institute.
1988	Biometric Society – ENAR, President's Invited Address, Boston, MA.
1992	B.V. Sukhatme Memorial Lecture, Iowa State University, Ames, IA.
1992	First Biennial Days of Biometrics Lecture Series, Adolphe Quetelet Society, Louvain-La-Leuve, Belgium.
1993	Psychometric Society, President's Invited Address, Barcelona, Spain.
1993	Elected Member of the American Academy of Arts and Sciences [I:1].
1994	Royal Statistical Society, President's Invited Address, Newcastle upon Tyne, England.
1995	Statistician of the Year, American Statistical Association, Boston Chapter.
1995	Jacob Marschack Colloquium, University of California, Los Angeles, CA.
1995	Samuel S. Wilks Memorial Medal, American Statistical Association (awarded annually since 1964; the Association's "most prestigious award").
1996	Emanuel and Carol Parzen Prize for Statistical Innovation (awarded biannually since 1994).
1996	C.L. and M.D. Rustagi Memorial Lecture, Ohio State University, Columbus, OH.
1997	First Corcoran Memorial Lecture, Department of Statistics, University of Oxford, Oxford, U.K.
1997	Bernard Greenberg Memorial Lecture, Department of Biostatistics, University of North Carolina.
1997	Distinguished Lecture Series in Statistics, Wharton School, University of Pennsylvania.
1997	Clifford C. Clogg Memorial Lecture in Sociology and Statistics, Pennsylvania State University.
2001	Statistician of the Year, American Statistical Association, Chicago Chapter.
2001	Mitchell Prize, International Society for Bayesian Analysis/Section on Bayesian Statistical Sciences of the American Statistical Association. (With K. Hirano, G. Imbens and X-H Zhou.)
2001	American Public Health Association, Lowell Reed Lecturer.
2002	Highly Cited Mathematicians, Decade 1991-2000. Science Watch, 13, 1, ISI Thompson.

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2002	Highly Cited Economists, Decade 1990-2000. <u>Social Science Citation Index</u> , ISI Thompson.
2003	Keynote Invited Lecture, 14 <sup>th</sup> Conference on Machine Learning and 7 <sup>th</sup> European Conference on Knowledge Discovery in Databases, Cavtat, Croatia.
2004	Knapp University Lecture, University of Wisconsin, Madison.
2004	Baxter Memorial Lecture, State University of New York, Stony Brook.
2004	Joint Program on Statistical Methods 10 <sup>th</sup> Anniversary Distinguished Lecture, Washington, D.C.
2004	Special Plenary Lecture, European Conference on Quality and Methodology in Official Statistics, Mainz, Germany.
2004	Keynote Address, 6 <sup>th</sup> International German Socio-Economic Panel User Conference, Berlin, Germany.
2004	Keynote Lecture, 24 <sup>th</sup> Biennial Conference of the Society for Multivariate Analysis in the Behavioral Sciences, Jena University, Germany.
2004	John Wiley and Sons Lifetime Achievement Award in Statistics and Mathematics, Joint Statistical Meetings, Toronto, Ontario, Canada.
2004	Fisher Lecturer, Joint Statistical Meetings, Committee of Presidents of Statistical Societies, Toronto, Ontario, Canada.
2005	Biometric Society – WNAR, President's Invited Address, Fairbanks, AK.
2005	Morris H. DeGroot Memorial Lecture, Carnegie Mellon University, Pittsburgh, PA.
2005	Plenary Lecture, Annual Meeting of the German Statistical Society, Braunschweig, Germany.
2005	Morris H. Hansen Memorial Lecture, Washington D.C. Chapter of the American Statistical Association, Washington, D.C.
2005	Plenary Lecture, Conference on Econometric Evaluation of Public Polices: Methods and Applications, Paris, France.
2006	Keynote Address, 5 <sup>th</sup> Annual Hawaii International Conference on Statistics, Mathematics, and Related Fields, Honolulu, Hawaii.
2006	Distinguished Lecture, NSF Program for Interdisciplinary Mathematics, Ecology, and Statistics, Fort Collins, Colorado.
2006	Keynote Address, ZEW Evaluation Conference, Mannheim, Germany.
2007	George W. Snedecor Award of the Committee of Presidents of Statistical Societies.
2007	Kuwaiti Lecture in Mathematics, University of Cambridge, UK.
2008	Keynote Address, European Association of Methodology, Oviedo, Spain.
2008	Award of Honorary Membership, European Association of Methodology.

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2008	Keynote Speaker, Symposium on Causality, Jena, Germany.
2009	Inaugural Lecture for Georgia State Department of Statistics, Atlanta, Georgia.
2009	Inaugural Cochran Lecture at the Atlantic Causal Modelling Conference, Philadelphia, Pennsylvania.
2009	Elected Corresponding Fellow of the British Academy, London, U.K.
2009	Sole Invited Discussant, Census Conference on Preserving Confidentiality Using Synthetic Data, Washington, D.C.
2009	Mitchell Prize, International Society for Bayesian Analysis/Section and Bayesian Statistical Sciences of the American Statistical Association. (With H. Jin.)
2009	Distinguished Plenary Speaker, Singapore Economic Review Conference, Singapore.
2009	Humboldt Research Award, Alexander von Humboldt Foundation, Bonn, Germany.
2010	Elected Member, National Academy of Sciences.
2010	Invited Presentation, University of Rome, May, Rome, Italy.
2010	Invited Tutorial on Active Learning and Experimental Design, AISTATS Conference, May, Sardinia, Italy.
2010	Invited Presentation on Causal Inference, Department of Statistics, University of Florence, May, Florence, Italy.
2010	Plenary Lecture, Google Statfoo Conference, May, Palo Alto, CA.
2010	Keynote Speaker, 50th Anniversary of Department of Statistics, University of Wisconsin, Madison, WI.
2010	Keynote Speaker, International Chinese Statistical Association, June, Indianapolis, IN.
2010	Keynote Speaker, European Association of Methodology, July, Potsdam, Germany.
2010	Invited General Discussant, Symposium on Causality in Education, July, Jena, Germany.
2010	Keynote Address and Short Course on Causal Inference, Nordic Statistical Meetings, August, Copenhagen, Denmark.
2011	Lewis B. Sheiner Lecture Award, University of California-San Francisco/American Conference on Pharmacometrics (ACoP), April, San Diego, CA.
2011	Invited Keynote Speaker, Pacific Coast Statisticians and Pharmacometricians Innovation Conference (PaSiPhIC), July, San Luis Obispo, CA.
2011	Invited Plenary Speaker, First Wuxi International Statistics Forum, July, Wuxi, China.
2011	Invited Plenary Speaker, 2011 International Statistics Institute, 58th World Statistics Congress, August, Dublin, Ireland.
2011	Invitee, Annual Dies Academicus, University of Bamberg, November, Bamberg, Germany.

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2012	Distinguished Keynote Lecture, Second Joint Biostatistics Symposium, July 8, Beijing, China.
2012	Tsinghua University Pao-Lu Hsu Distinguished Lectures (2 <sup>nd</sup> annual; 1 <sup>st</sup> annual Bradley Efron, Stanford University), July 11 & 13, Beijing, China.
2012	Invited Otis Dudley Duncan Memorial Lecture, American Sociological Association, August 17, Denver, Colorado.
2013	Invited Speaker, COPSS 50th Anniversary, JSM 2013, August 5, 2013, Montreal, Canada.
2014	Keynote Speaker, International Conference on Risk Analysis of Meteorological Disasters (RAMD'14), October 12 & 13, Nanjing, China.
2014	Highly Cited Researcher, <u>The World's Most Influential Scientific Minds: 2014</u> , Thomson Reuters, October 6, 2014, London, UK.
2014	Invited Speaker, 2014 International Methodology Symposium, Statistics Canada, October 31, 2015, Ottawa, Canada.
2015	Keynote Speaker, International Workshop on Applied Statistics (4 <sup>th</sup> Annual IWAS 2015), April 22 – 25, Bogotá, Colombia.
2000 - Present	According to <u>Google Scholar</u> , one of the most highly cited mathematicians, statisticians, economists, or psychologists in the world. See, for statistics, (http://scholar.google.com/citations?view_op= search_authors& hl=en&mauthors=label:statistics).

## **Honorary Doctorates**

- 2011 Honorary Degree, Doctorate Honoris Causa, Faculty of Social Sciences and Economics, Otto-Friedrich-Universität Bamberg, May 31, Bamberg, Germany.
- 2012 Honorary Degree, Doctorate Honoris Causa, University of Ljubljana, December 4, Ljubljana, Slovenia.
- 2015 Honorary Degree, Doctorate Honoris Causa, Universidad Santo Tomás, April 22, Bogotá, Colombia.

### **Honorary Professorships**

2012-2013	Honorary Belle van Zuylen Professor, Department of Methodology and Statistics, University of Utrecht, The Netherlands.
2014	Honorary Professorship, Shanghai Finance University, October 11, Shanghai, China.
2014	Honorary Professorship, Nanjing University of Science & Technology, October 12, Nanjing, China.
2014	Honorary Professorship, Xi'an University of Technology, October 16, Xi'an, China.

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#### **Memberships in Professional Societies:**

American Academy of Arts and Sciences [Fellow, I:1] American Association for the Advancement of Science (Fellow) American Public Health Association American Statistical Association (Fellow) **Biometric Society** British Academy (Corresponding Fellow) Econometric Society European Association of Methodology (Honorary Member) Institute for Employment Research (Fellow) Institute of Mathematical Statistics (Fellow) International Association of Survey Statisticians International Chinese Statistical Association (Permanent Member) International Statistical Institute National Academy of Sciences New York Academy of Sciences **Psychometric Society Royal Statistical Society** Society for Research Synthesis Methodology

## **Biography included in:**

Who's Who in America Who's Who in The World Who's Who in American Education Who's Who in The East Who's Who in Science and Engineering Who's Who in Economics Who's Who in Medicine and Health Care International Who's Who of Professionals American Biographical Institute Strathmore's Who's Who Dictionary of International Biography American Men and Women of Science National Register's Who's Who in Executives and Professionals Madison's Who's Who

#### **Books and Monographs:**

- 1980 <u>Handling Nonresponse in Sample Surveys by Multiple Imputations</u>, U.S. Department of Commerce, Bureau of the Census Monograph.
- 1982 Test Equating. New York: Academic Press, Inc. (Co-Edited with P.W. Holland.)
- 1983 <u>Incomplete Data in Sample Surveys (Volume 2): Theory and Bibliographies</u>. New York: Academic Press, Inc., co-edited with W.G. Madow and I. Olkin.
- 1987 Multiple Imputation for Nonresponse in Surveys. New York: John Wiley and Sons.
- 1987 <u>Statistical Analysis with Missing Data</u>. New York: John Wiley and Sons. (With R.J.A. Little.) Translated into Russian in 1991: Finansy and Statistika Publishers, Moscow, Andrei Nikiforev, translator.
- 1995 <u>Bayesian Data Analysis</u>. New York: Chapman and Hall. (With A. Gelman, J. Carlin, and H. Stern.)
- 2000 <u>Contrasts and Effect Sizes in Behavioral Research: A correlational approach</u>. Cambridge, UK: Cambridge University Press. (With R. Rosenthal and R. Rosnow.)
- 2002 <u>Statistical Analysis with Missing Data</u>, 2nd ed. New York: John Wiley and Sons. (With R.J.A. Little). Translated into Chinese in 2003: China Statistics Press, People's Republic of China.
- 2004 <u>Bayesian Data Analysis</u>, 2nd ed. New York: CRC Press. (With A. Gelman, J. Carlin, and H. Stern.)
- 2004 <u>Multiple Imputation for Nonresponse in Surveys</u>. Reprinted with appendices as a "Wiley Classic." New York: John Wiley and Sons. Appendix 1: (1977) "The Design of a General and Flexible System for Handling Non-Response in Sample Surveys."; Appendix 2: (1983) "Progress Report on Project For Multiple Imputation of 1980 Codes." Manuscript distributed to the U.S. Bureau of the Census, the U.S. National Science Foundation and the Social Science Research Foundation.
- 2006 Matched Sampling for Causal Effects. New York: Cambridge University Press.
- 2013 <u>Bayesian Data Analysis</u>, 3rd ed. New York: CRC Press. (With A. Gelman, J. Carlin, H. Stern, D. Dunson and A. Vehtari.)
- 2015 <u>Causal Inference for Statistics, Social, and Biomedical Sciences</u>. New York: Cambridge University Press. (With G. Imbens.) [To appear January 2015.]

### **Published Articles, Reviews and Discussions:**

- 1. 1967 "Student Dissatisfaction with College and the College Dropout: A Transactional Approach." <u>The Journal of Social Psychology</u>, <u>72</u>, pp. 285-295. (With L. Pervin.)
- 2. 1970 "The Computerized Construction of a Matched Sample." <u>The American Journal of</u> <u>Sociology</u>, <u>76</u>, 2, pp. 325-346. (With R. Althauser.)
- 3. 1971 "Measurement Error and Regression to the Mean in Matched Samples." <u>Social Forces</u>, <u>50</u>, pp. 206-214. (With R. Althauser.)
- 4. 1971 Discussion following "The Analysis of Incomplete Data," H.O. Hartley and R.R. Hocking. <u>Biometrics</u>, <u>27</u>, 4, pp. 817-818.
- 5. 1971 "Pygmalion Reaffirmed." In <u>Pygmalion Reconsidered</u>, J.D. Elashoff and R.E. Snow. Worthington, Ohio: Charles Jones Publishing Co., pp. 139-155. (With R. Rosenthal.)
- 6. 1972 "A Non-iterative Algorithm for Least Squares Estimation of Missing Values in Any Analysis of Variance Design." <u>The Journal of the Royal Statistical Society, Series C</u> (Applied Statistics), 21, 2, pp. 136-141.
- 7. 1973 "Matching to Remove Bias in Observational Studies." <u>Biometrics</u>, <u>29</u>, 1, pp. 159-183. Printer's correction note <u>30</u>, p. 728.
- 8. 1973 "The Use of Matched Sampling and Regression Adjustment to Remove Bias in Observational Studies." <u>Biometrics</u>, <u>29</u>, 1, pp. 184-203.
- 9. 1973 "Controlling Bias in Observational Studies: A Review." <u>Sankhya A</u>, <u>35</u>, 4, pp. 417-446. (With W.G. Cochran.)
- 10. 1974 "Characterizing the Estimation of Parameters in Incomplete Data Problems." <u>The Journal</u> of the American Statistical Association, <u>69</u>, 346, pp. 467-474.
- 11. 1974 "Estimating Causal Effects of Treatments in Randomized and Nonrandomized Studies." Journal of Educational Psychology, <u>66</u>, 5, pp. 688-701.
- 12. 1974 Review of <u>The Dependability of Behavioral Measurements: Theory of Generalizability for</u> <u>Scores and Profiles</u>, L.J. Cronbach, G.C. Gleser, H. Nanda and N. Rajaratnam. <u>The Journal</u> <u>of the American Statistical Association</u>, <u>69</u>, 348, p. 1050.
- 13. 1974 "Effects of Compaction on Memory Utilization in Multi Programming Systems." <u>Computer Architectures and Networks</u>, E. Gelenbe and R. Mahl (eds.). North Holland Publishing Company, pp. 113-124. (With J.P. Buzen.)
- 14. 1975 "Matched Sampling." <u>Encyclopedia of Educational Evaluation</u>, S.B. Anderson, S. Ball and R.T. Murphy. New York: Jossey-Bass, Inc., pp. 238-241.
- 15. 1975 "Bayesian Inference for Causality: The Importance of Randomization." <u>The Proceedings</u> of the Social Statistics Section of the American Statistical Association, pp. 233-239.
- 16. 1975 "The Variance of a Linear Combination of Independent Estimators." <u>Biometrika</u>, <u>62</u>, 3, pp. 708-709. (With S. Weisberg.)
- 17. 1976 "The Acceptability of Regression Solutions: Another Look at Computational Accuracy." <u>The Journal of the American Statistical Association</u>, <u>71</u>, 353, pp. 158-168. (With A.E. Beaton and J. Barone.)

- 18. 1976 "Multivariate Matching Methods that are Equal Percent Bias Reducing, I: Some Examples." <u>Biometrics</u>, <u>32</u>, 1, pp. 109-120. Printer's correction note p. 955.
- 1976 "Multivariate Matching Methods that are Equal Percent Bias Reducing, II: Maximums on Bias Reduction for Fixed Sample Sizes." <u>Biometrics</u>, <u>32</u>, 1, pp. 121-132. Printer's correction note p. 955.
- 20. 1976 "Comparing Regressions When Some Predictor Values are Missing." <u>Technometrics</u>, <u>18</u>, 2, pp. 201-205.
- 21. 1976 "Criminality, Aggression and Intelligence Among XYY and XXY Men." <u>Science</u>, <u>193</u>, August 13, pp. 547-555. (With H.A. Witkin, et al.)
- 22. 1976 "Inference and Missing Data." <u>Biometrika</u>, <u>63</u>, 3, pp. 581-592. With discussion and reply.
- 1976 "Noniterative Least Squares Estimates, Standard Errors, and F-Tests for Any Analysis of Variance with Missing Data." <u>The Journal of the Royal Statistical Society, Series B</u>, <u>38</u>, 3, pp. 270-274.
- 24. 1977 "Assignment to Treatment Group on the Basis of a Covariate." Journal of Educational Statistics, 2, 1, pp. 1-26. Printer's correction note 3, p. 384.
- 25. 1977 "The Calculation of the Posterior Distribution of Cell Means in a Bayesian Two-Way Unbalanced MANOVA." <u>The Journal of the Royal Statistical Society, Series C (Applied Statistics)</u>, 26, 1, pp. 60-66. (With T.W.F. Stroud.)
- 26. 1977 "Maximum Likelihood from Incomplete Data Via the EM Algorithm." <u>The Journal of the Royal Statistical Society, Series B</u>, <u>39</u>, 1, pp. 1-38. With discussion and reply. (With A.P. Dempster and N. Laird.)
- 27. 1977 "Formalizing Subjective Notions About the Effect of Nonrespondents in Sample Surveys." <u>The Journal of the American Statistical Association</u>, 72, 359, pp. 538-543.
- 28. 1977 "Comment on `More on Computational Accuracy in Regression'." <u>The Journal of the American Statistical Association</u>, 72, 3, pp. 600-601. (With A.E. Beaton and J. Barone.)
- 29. 1977 "Comparing High Schools with Respect to Student Performance in University." Journal of Educational Statistics, 2, 2, pp. 139-155. (With T.W.F. Stroud.)
- 1977 "Statistical Inference." <u>The International Encyclopedia of Neurology</u>, Psychiatry, <u>Psychoanalysis, and Psychology</u>, ed. B. Wolman. Van Nostrand, Reinhold Aesculapius. Vol. X, pp. 445-447.
- 31. 1978 "Bayesian Inference for Causal Effects: The Role of Randomization." <u>The Annals of Statistics, 6</u>, 1, pp. 34-58.
- 32. 1978 "A FORTRAN Algorithm for the Additive Model in a Two-Way Unbalanced MANOVA." <u>Applied Statistics (JRSS-C), 27</u>, 1, pp. 92-109. (With T.W.F. Stroud and D.T. Thayer.)
- 33. 1978 "Relating Tests Given to Different Samples." <u>Psychometrika</u>, <u>43</u>, 1, pp. 3-10. (With D.T. Thayer.)
- 34. 1978 "A Note on Bayesian, Likelihood, and Sampling Distribution Inferences." <u>The Journal of</u> <u>Educational Statistics</u>, 3, 2, pp. 189-201.

- 35. 1978 "Comparing Regressions When Some Predictor Values are Missing." <u>American Society of</u> <u>Quality Control Transactions of 34th Annual Conference</u>, pp. 81-84. (Condensed version of article previously published in <u>Technometrics.</u>)
- 36a. 1978 "Interpersonal Expectancy Effects: The First 345 Studies." <u>The Behavioral and Brain</u> <u>Sciences, 1</u>, 3, pp. 377-386. (With R. Rosenthal.)
- 36b. 1978 "Issues in Summarizing the First 345 Studies of Interpersonal Expectancy Effects." <u>The</u> <u>Behavioral and Brain Sciences</u>, <u>1</u>, 3, pp. 410-415. (With R. Rosenthal.)
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### Patents

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- 1980 "File Concatenation with Adjusted Weights."
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- 1991 "On Bias from Equating Tests in Restricted Populations." (With R.J.A. Little.)
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- 1991 "Documentation of Handling of Unresolved Enumeration Status in 1990 Census/Post-Enumeration Survey." STSD Decennial Census Memorandum Series #V-98, U.S. Bureau of the Census, Washington, D.C. (With T. Belin, G. Diffendal, J. Schafer, and A. Zaslavsky.)
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- 2011 "Combining One-Sided p-values from Multiply-Imputed Data." To be submitted to <u>American Statistician</u>. (With Christine Licht and Suzanne Raessler.)
- 2012 "A Potential Outcomes, and Typically More Powerful, Alternative to "Cochran-Mantel-Haenszel." To be submitted to <u>Statistics in Medicine</u>. (With C. Pattanayak and E. Zell.)
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- 2014 "Assessing the Potential Impact of a Nationwide Class-Based Affirmative Action System." Resubmitted to <u>Statistical Science</u>. (With A. Xiang.)
- 2014 "Balancing the Research Use of Health and Medical Data with Confidentiality Protection." Submitted to <u>Statistics in Medicine</u>. (With C.M. O'Keefe.)

- 2014 "Rerandomization to Balance Tiers of Covariates." Submitted to the <u>Journal of the</u> <u>American Statistical Association, Applications and Case Studies</u>. (With K.L. Morgan).
- 2014 "Evaluating the Validity of Post-hoc Subgroup Inferences: A Case Study." Submitted to <u>American Statistician</u>. (With J.J. Lee.)
- 2014 "Clarifying Missing at Random." Revision submitted to Biometrika. (With F. Mealli.)
- 2014 "Comparing Procedures for Causal Effect Estimation with Binary Treatments in Unconfounded Studies with One Continuous Covariate." Submitted to <u>Biometrics</u>. (With R. Gutman.)
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- 2014 "Investigating Likelihood Approaches in Complex Causal Models." Submitted to the Journal of the American Statistical Association. (With P. Frumento, F. Mealli, and B. Pacini.)
- 2014 "A Principal Stratification Approach to Receipt of Rescue Medication in Early Escape Designs." To be submitted. (With D. Watson, V. Garcia-Horton, and S. Lindborg.)

### Ph.D. Theses Supervised (as Primary or Sole Advisor):

\*Fellow of American Statistical Association <sup>†</sup>COPSS Prize Winner (Outstanding Young Statistician) <sup>††</sup>President, American Statistical Association

- 1980 Paul R. Rosenbaum\*, "The Analysis of a Nonrandomized Experiment: Balanced Stratification and Sensitivity Analysis." Harvard University. Current Position: Professor, Department of Statistics, Wharton, University of Pennsylvania.
- 1981 David A. Lax, "Inference with Unobserved Variables: Analysis of a Nonrandomized Study." Harvard University. Current Position: Managing Principal, Lax Sebenius LCC, Concord, MA.
- 1985 Nathaniel Schenker<sup>\*††</sup>, "Multiple Imputation for Interval Estimation from Surveys with Ignorable Nonresponse." University of Chicago. Current Position: Associate Director for Research and Methodology, National Center for Health Statistics, Washington D.C..
- 1985 Kim-Hung Li, "Hypothesis Testing in Multiple Imputation--with Emphasis on Mixed-up Frequencies in Contingency Tables." University of Chicago. Current Position: Professor, Department of Statistics, Chinese University of Hong Kong.
- 1985 Daniel F. Heitjan\*, "Analysis of a Set of Coarsely Grouped Data." University of Chicago. Current Position: Professor, Department of Biostatistics, University of Pennsylvania Perleman School of Medicine. [President, ENAR 2013.]
- 1987 T.E. Raghunathan\*, "Large Sample Significance Levels from Multiply-Imputed Data." Harvard University. Current Position: Professor and Chair, Department of Biostatistics, and Research Professor, Survey Research Center, Institute for Social Research, University of Michigan.

- 1987 Leisa H. Weld, "Significance Levels from Public-Use Data With Multiply-Imputed Industry Codes." Harvard University. Current Position: Statistician, Centers for Disease Control and Prevention, Atlanta.
- 1988 S. Neal Thomas, Jr.\*, "Designing an Observational Study Using Estimated Propensity Scores." University of Chicago. Current Position: Senior Research Biostatistician, Pfizer Inc.
- 1989 Alan M. Zaslavsky\*, "Representing the Census Undercount: Reweighting & Imputation Methods." M.I.T. Current Position: Professor, Department of Health Care Policy, Harvard Medical School.
- 1990 Andrew E. Gelman\*<sup>†</sup>, "Topics in Image Reconstruction for Emission Topography." Harvard University. Current Position: Professor, Department of Statistics, Columbia University.
- 1990 Xiao-Li Meng<sup>\*†</sup>, "Towards Complete Results for Some Incomplete-Data Problems." Harvard University. Current Position: Professor, Department of Statistics, Harvard University, and Dean, Graduate School of Arts and Sciences, Harvard University.
- 1991 Thomas R. Belin\*, "Using Mixture Models to Calibrate Error Rates in Record-Linkage Procedures, With Application to Computer Matching for Census Undercount Estimation." Harvard University. Current Position: Professor, Departments of Biostatistics and Psychiatry and Biobehavioral Science, UCLA.
- 1992 Joseph L. Schafer, "Algorithms for Multiple Imputation and Posterior Simulation from Incomplete Multivariate Data with Ignorable Nonresponse." Harvard University. Current Position: Area Chief for Statistical Computing, Center for Statistical Research & Methodology, U.S. Census Bureau, Washington, D.C.
- 1994 Ralph B. D'Agostino, Jr.\*, "Estimating Propensity Scores When Covariates Have Either Ignorable or Nonignorable Missing Values." Harvard University. Current Position: Professor, Department of Public Health Sciences, Biostatistics Section, Bowman Gray School of Medicine, Wake Forest University, and Core Director, Comprehensive Cancer Center, Bowman Gray School of Medicine, Wake Forest University.
- 1994 Chuanhai Liu\*, "Statistical Analysis Using the Multivariate t Distribution." Harvard University. Current Position: Professor, Department of Statistics, Purdue University.
- 1996 Michael D. Larsen\*, "Bayesian Approaches to Finite Mixture Models." Harvard University. Current Position: Associate Professor, Department of Statistics, George Washington University.
- 1996 Heng Li, "A Vector Space Approach to Linear Models and Its Application in Dyadic Designs." Harvard University. Current Position: Mathematical Statistician, Center for Devices and Radiological Health, Food and Drug Administration.
- 1997 Yingnian Wu, "Modeling General Mixture Components with Application to Schizophrenic Eye-Tracking." Harvard University. Current Position: Professor, Department of Statistics, UCLA.
- 1998 Jiangtao Du, "Valid Inferences After Propensity Score Subclassification Using Maximum Number of Subclasses as Building Blocks." Harvard University. Current Position: SVP, Senior Portfolio Manager, Abbey National Treasury Services, Stamford, CT.

- 1998 Leonard D. Roseman, "Reducing Bias in the Estimate of the Difference in Survival in Observational Studies Using Subclassification on the Propensity Score." Harvard University. Current Position: Vice President, Statistical Analysis, Capital One.
- 1999 Constantine E. Frangakis, "On Coexistent Complications with Noncompliance with Study-Protocols, and Implications for Statistical Analysis." Harvard University. Current Position: Professor, Department of Biostatistics, Bloomberg School of Public Health, Johns Hopkins University.
- 1999 Jerome P. Reiter\*, "Estimation in the Presence of Constraints that Prohibit Explicit Data Pooling." Harvard University. Current Position: Mrs. Alexander Hehmeyer Professor of Statistical Science, Department of Statistical Science, Duke University.
- 2000 Jennifer L. Hill, "Classification by Opinion-Changing Behavior: Mixture Models That Accommodate Missing Data." Harvard University. Current Position: Associate Professor of Applied Statistics, Steinhardt School of Culture, Education, and Human Development, New York University.
- 2000 Zijin (C.J.) Shen, "Nested Multiple Imputation." Harvard University. Current Position: Head of Options, Jump Trading, LLC, New York and Chicago.
- 2002 Junni L. Zhang, "Causal Inference with Principal Stratification: Some Theory and Application." Current Position: Associate Professor, Department of Business Statistics and Econometrics, Guanghua School of Management, Beijing University.
- 2004 Samantha R. Cook, "Modeling Monotone Nonlinear Disease Progression and Checking the Correctness of the Associated Software." Current Position: Chief Scientist, Financial Network Analytics (FNA), Barcelona, Spain.
- 2004 Elizabeth A. Stuart\*, "Matching Methods for Estimating Causal Effects Using Multiple Control Groups." Current Position: Associate Professor, Department of Mental Health, Bloomberg School of Public Health, Johns Hopkins University.
- 2005 Hui Jin, "Principal Stratification for Causal Inference with Extended Partial Compliance." Current Position: Economist, International Monetary Fund, Washington, DC.
- 2007 D. James Greiner, "Potential Outcomes and Causal Effects of Immutable Characteristics." Current Position: Professor, Harvard Law School.
- 2008 Charity J. Morgan, "Assessing Thought Disordered Behavior Using Finite Mixture Models and Comparing Approximations for Logistic Regression." Current Position: Assistant Professor, Biostatistics, University of Alabama at Birmingham.
- 2011 Kari Lock, "Rerandomization to Improve Covariate Balance in Randomized Experiments." Current position: Assistant Professor, Department of Statistics, Pennsylvania State University.
- 2011 Roee Gutman, "Topics and Applications in Missing Data and Causality." Current position: Assistant Professor, Biostatistics, Brown University School of Public Health.
- 2011 Cassandra (Wolos) Pattanayak, "The Critical Role of Covariate Balance in Causal Inference with Randomized Experiments and Observational Studies." Current Position: Director, Quantitative Analysis Institute, Wellesley College.
- 2013 Viktoriia Liublinska, "Sensitivity Analyses in Empirical Studies Plagued with Missing Data." Current Position: College Fellow in Statistics, Department of Statistics, Harvard University.

2014 - Arman Sabbaghi, "Dilemmas in Design: From Neyman and Fisher to 3D Printing." Current position: Assistant Professor, Statistics, Purdue University.

### Ph.D. Theses Jointly Supervised

- 1996 Sadek M. Wahba, "Estimation of Causal Effects in Observational Studies: Applications to Training Programs and Labor Migration Decisions." Department of Economics, Harvard University. Current Position: Managing Partner, Squared Capital, New York, NY.
- 1997 Rajeev H. Dehejia, "Econometric Methods for Program Evaluation." Department of Economics, Harvard University. Current Position: Associate Professor of Public Policy, Wagner Graduate School of Public Service, New York University.
- 1997 Bruce I. Sacerdote, "The Lottery Winner Survey, Crime and Social Interactions and Why is There More Crime in Cities." Department of Economics, Harvard University. Current Position: Professor, Department of Economics, Dartmouth College.
- 1997 Sarah W. Thurston, "Error Analysis of Food Stamp Microsimulation Models." Department of Statistics, Harvard University. Current Position: Associate Professor, Department of Biostatistics and Computational Biology, University of Rochester Medical Center.
- 1998 Keisuke Hirano, "Essays on the Econometric Analysis of Panel Data." Department of Economics, Harvard University. Current Position: Professor, Department of Economics, University of Arizona.
- 1998 Elaine L. Zanutto, "Imputation for Unit Nonresponse: Modeling Sampled Nonresponse Follow-up, Administrative Records, and Matched Substitutes." Department of Statistics, Harvard University. Current Position: Vice President of Methods and Analytics, Naxion, Philadelphia, PA.
- 1999 Jaap P.L. Brand, "Development, Implementation and Evaluation of Multiple Imputation Strategies for the Statistical Analysis of Incomplete Data Sets." Erasmus University, Rotterdam. Current Position: Biostatistician/bioinformatician at Skyline Diagnostics BV, Rotterdam, The Netherlands.
- 1999 Alyce S. Adams, "Tribal Management in Indian Health, Effect of Drug Coverage on Drug Expenditures for Medicare Beneficiaries, and Self-Report Bias in Studies of Guideline Adherence." Kennedy School of Government, Harvard University. Current Position: Research Scientist, Kaiser Permanente Division of Research, Oakland, CA.
- 2001 Eric O. Loken, "Temperamental Types as Latent Classes." Department of Psychology, Harvard University. Current Position: Research Associate Professor, Department of Human Development and Family Studies, Pennsylvania State University.
- 2005 Yaming Yu, "Three Contributions to Statistical Computing." Department of Statistics, Harvard University. Current Position: Associate Professor, Department of Statistics, University of California, Irvine.
- 2010 Christine Licht, "New Methods for Generating Significance Levels from Multiply-imputed Data," Winner of Outstanding Dissertation, Dept. of Statistics and Econometrics, University of Bamberg. Current Position: Coach and Consultant, Business Model Canvas, Germany.

- 2010 Yves Chretien. "Three Applications of Statistics to Medical Research." Department of Statistics, Harvard University. Current Position: Medical Intern and Resident in Radiology, Massachusetts General Hospital and Harvard University.
- 2012 Bronwyn Loong. "A Discussion of Uncongeniality for Synthetic Data." Current Position: Assistant Professor, Department of Statistics, Australian National University.
- 2013 Ana Kolar. "Sample Size Considerations When Using Propensity Score Methods to Estimate Causal Effects." Statistics for Social Sciences, University of Ljubljana, Slovenia. Current position: Population and Development Specialist, United Nations Joint Office of UNDP, UNFPA and UNICEF in Cape Verde (Population and Poverty Reduction Unit).
- 2013 Nathan Stein. "Topics in Empirical Bayes Modeling and Bayesian Computation." Current Position: Shepp Research Fellow and Lecturer, Department of Statistics, Wharton School, University of Pennsylvania.
- 2013 Valeria Espinosa. "A Bayesian Perspective on Factorial Experiments Using Potential Outcomes." Current position: Quantitative Analyst, Google, CA.
- 2014 David A. Watson. "Complications in Causal Inference: Incorporating Information Observed After Treatment is Assigned." Current position: Visiting Assistant Professor, Department of Mathematics, Carleton College.

#### **BA/MA/MS** Theses Solely or Jointly Supervised

- 1991 Michael D. Larsen\*, "Multiple and Simple Imputation for Nonresponse in Sample Surveys and the FARS Data Set." Undergraduate Honors Thesis, Department of Mathematics, Harvard University.
- 1999 Daniel J. Benjamin, "Does 401(k) Eligibility Increase Net National Savings?: Reducing Bias in the Eligibility Effect Estimate." Undergraduate Honors Thesis, Department of Economics, Harvard University. Winner of Hoopes Prize.
- 2000 Kristin N. Javaras, "A General Location Model Allowing for Semicontinuous Variables and Incomplete Data." Undergraduate Honors Thesis, Department of Statistics, Harvard University. Rhodes Scholar.
- 2001 Masako Irie, "Handgun Waiting Periods and Their Effectiveness on Crime Rates and Homicide: a Statistical Analysis on Gun Control." AB/AM Thesis, Department of Economics and Department of Statistics, Harvard University.
- 2001 Yi Qian, "Do Additional National Patent Laws Stimulate More Domestic Innovation in a Global Patenting Environment?: An Empirical Analyses for Countries that Started Pharmaceutical Patent Protection During 1978-1997." AB/AM Thesis, Department of Economics and Department of Statistics, Harvard University.
- 2002 L. Stephen Long, "Psychopathic Personality and Affect in a Non-Incarcerated Sample." Undergraduate Honors Thesis, Departments of Psychology and Statistics, Harvard University. Winner of Hoopes Prize.
- 2003 Brent Tworetsky. "An Analysis of Requested World Wide Web File Sizes." Undergraduate Honors Thesis, Departments of Computer Science and Statistics, Harvard University. Winner of Hoopes Prize.

- 2004 Leo P. Espindle. "Improving Confidence Coverage for the Estimate of the Treatment Effect in a Subclassification Setting." Undergraduate Honors Thesis, Department of Applied Mathematics, Harvard University.
- 2006 Cassandra K. Wolos. "Matching Methods for Small Sample Size Observational Studies: Reducing Bias in the Pennsylvania Value-Added Assessment System Pilot Program Evaluation." Undergraduate Honors Thesis, Department of Statistics, Harvard University.
- 2008 Olivia Levine. "The Effect of Minority Status on Educational Attainment: An Evaluation With Propensity Score Matching." Undergraduate Honors Thesis, Department of Sociology, Harvard University.
- 2010 Joseph Lee. "Evaluating Bias in Experiments with Partially Selective Sampling." Undergraduate Honors Thesis, Department of Applied Mathematics, Harvard University. Winner of Hoopes Prize.
- 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, Department of Statistics, Harvard University.
- 2013 Alice Xiang. "Assessing the Potential Impact of a Nationwide Class-Based Affirmative Action System." Undergraduate Honors Thesis, AB/AM Candidate, Departments of Economics and Statistics, Harvard University. Winner of Hoopes Prize; winner of the Seymour E. and Ruth B. Harris Prize in Economics for "the outstanding honors thesis."

#### Current Advanced PhD Students, Supervising or Jointly Supervising

Nikola Andric Hillel Bavli Peng Ding Avi Feller Thomas Ferris Viviana Garcia Horton Joseph Lee Panagiotis (Panos) Toulis