

Thaddeus Tarpey

Office address:

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Education:

- Ph.D. Mathematics, May 1992, Indiana University Mathematics Department, Bloomington, Indiana. Dissertation: Principal Points. Advisor: Bernard Flury. Minor: Analysis.
- M.A. Mathematics, May 1987, Mathematics Department, Indiana University, Bloomington, Indiana.
- B.A. Mathematics (Minor History), May 1983, University of Kentucky, Lexington, Kentucky.

Experience:

- Wright State University, Department of Mathematics and Statistics, Dayton, Ohio 45435
- Statistics Program Director, March 2009 to present,
 - Professor, September 1, 2006 to present
 - Associate Professor, September 1, 2000 to August 31, 2006
 - Assistant Professor, September 1, 1994 to August 31, 2000
- Senior Biostatistician, Columbia University/New York State Psychiatric Institute, New York, New York 10032.
 September, 2001 – August, 2002 (Sabbatical year), Summer of 2003.
- Statistical Consultant, Procter & Gamble Pharmaceuticals, Cincinnati, Ohio, Summer 1997.
- National Research Council Postdoctorate Associate, The National Institute of Standards and Technology, Boulder, Colorado. July 1992 - July 1994.
- Statistical Consultant, Mathematics Department, Indiana University, August 1990 - June 1992.
- Assistant Instructor in Mathematics Department, Indiana University, August 1986 – July 1991.

Awards and Honors:

Fellow of the American Statistical Association (2012)

Phi Beta Kappa (1983)

Publications:

1. Flury, B, and Tarpey, T. (1993), "Representing a Large Collection of Curves: A Case for Principal Points," *The American Statistician*, **47**, 304-306.
2. Tarpey, T. (1994), "Two Principal Points of Symmetric, Strongly Unimodal Distributions," *Statistics and Probability Letters*, **20**, 253-257.
3. Tarpey, T. (1995), "Principal Points and Self-Consistent Points of Symmetric Multivariate Distributions," *Journal of Multivariate Analysis*, **53**, 39-51.
4. Tarpey, T, Li, L., and Flury, B. (1995), "Principal Points and Self-Consistent Points of Elliptical Distributions," *The Annals of Statistics*, **23**, 103-112.
5. Tarpey, T., and Flury, B. (1996), "Self-Consistency: A Fundamental Concept in Statistics," *Statistical Science*, **11**, 229-243.
6. Tarpey, T. (1997), "Estimating Principal Points of Univariate Distributions," *Journal of Applied Statistics*, **24**, 483-496.
7. Flury, B., and Tarpey, T. (1998), "Principal Points." In *Encyclopedia of Statistical Science, Update Volume 2*, Kotz, S., Read, C., and Banks, D. Eds. Wiley: New York, 545-548.
8. Tarpey, T. (1998), "Self-Consistent Patterns for Symmetric Multivariate Distributions," *The Journal of Classification*, **15**, 57-79.
9. Tarpey, T. (1999), "Self-Consistency and Principal Component Analysis," *Journal of the American Statistical Association*, **94**, 456-467.
10. Tarpey, T. (1999), "Self-Consistency Algorithms," *Journal of Computational and Graphical Statistics*, **8**, 889-905.
11. Flury, B., and Tarpey, T. (1999), "Self-Consistency," In *Encyclopedia of Statistical Science Update Volume 3*, Kotz, S., Read, C., and Banks, D. Eds. Wiley: New York, 655-659.
12. Tarpey, T. (2000), "A Note on the PRESS Statistic for Restricted Least Squares," *The American Statistician*, **54**, 116-118.
13. Tarpey, T., and Holcomb, J. (2000), "Spline Bottles," *The American Statistician*, **54**, 129-135.

14. Tarpey, T. (2000), "Parallel Principal Axes," *The Journal of Multivariate Analysis*, **75**, 295–313.
15. Tarpey, T., Arcuña, C., Cobb, G., and De Veaux, R. (2002), "Curriculum Guidelines for Bachelor of Arts Degrees in Statistical Science," *Journal of Statistical Education*, **10**, number 2, July 2002.
16. Tarpey, T. (2003), "Estimating the Average Slope of a Function," *Journal of Applied Statistics*, **30**, 389–396.
17. Tarpey, T. and Kinateder, K., (2003), "Clustering Functional Data," *The Journal of Classification*, **20**, 93–114.
18. Tarpey, T., Petkova, E. and Ogden, R. T., (2003), "Profiling Placebo Responders by Self-Consistent Partitions of Functional Data," *Journal of the American Statistical Association*, **98**, 850-858 .
19. Tarpey, T. and Sanders, R., (2004), "Linear Conditional Expectation for Discretized Distributions," *Journal of Applied Statistics*, **31**, 361–372.
20. Goldstein, G., Sanders, R. D., Forman, S. D., Tarpey, T., Gurklis, J.A., Van Kammen, D. P. and Keshavan, M. S., (2005), "The Effects of Antipsychotic Medication on Factor and Cluster Structure of Neurologic Examination Abnormalities in Schizophrenia," *Schizophrenia Research*, **75**, 55–64.
21. Sanders, R. D., Allen, D. N., Forman, S. D., Tarpey, T., Keshavan M. S. and Goldstein, G, (2005), "Confirmatory factor analysis of the Neurological Evaluation Scale in unmedicated schizophrenia," *Psychiatry Research*, **133**, 65–71.
22. Ogden, R. T., and Tarpey, T., (2006), "On Estimation in Compartment Modeling with an Input Function," *Biostatistics*, **7**, 115-129
23. Tarpey, T. and Ivey, C. T., (2006), "Allometric Extension for Multivariate Regression Models," *The Journal of Data Science*, **4**, 479-495.
24. Tarpey, T., (2007), "Linear Transformations and the k -Means Clustering Algorithm: Applications to Clustering Curves," *The American Statistician*, **61**, 34-40.
25. Tarpey, T., (2007), "A Parametric k -Means Algorithm," *Computational Statistics*, **22**, 71-89.
26. Tarpey, T., Yun, D., and Petkova, E., (2008), "Model Misspecification: Finite Mixture or Homogeneous?," *Statistical Modeling*, **8**, 199-218.
27. Petkova, E. and Tarpey, T. (2009), "Partitioning of Functional Data for Understanding Heterogeneity in Psychiatric Conditions," *Statistics and Its Interface*, **2**, 413-424.

28. Petkova, E., Tarpey, T. and Govindarajulu, U., (2009), "Predicting Potential Placebo Effect in Drug Treated Subjects," *International Journal of Biostatistics*, **5**, Article 23.
29. Tarpey, T., Petkova, E., (2010), "Principal Point Classification: Applications to differentiating Drug and Placebo Responses in Longitudinal Studies," *Journal of Statistical Planning and Inference*, **140**, 539-550.
30. Tarpey, T., and Petkova, E., (2010), "Latent Regression Analysis," *Statistical Modelling*, **10**, 133-158.
31. Tarpey, T., Petkova, E., Lu, Y. and Govindarajulu, U, (2010), "Optimal Partitioning for Linear Mixed Effects Models: Applications to Identifying Placebo Responders," *Journal of the American Statistical Association*, **105**, 968?-977.
32. Tarpey, T. and Petkova, E., (2010), "Modelling Placebo Response via Infinite Mixtures," *JP Journal of Biostatistics*, **4**, 161-179.
33. Amarchinta, H. K., Tarpey, T., and Grandhi, R. V., (2010) "Regression Uncertainty Quantification using Bootstrap Method for Residual Stress Field Predictions," 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, April 12 - 15, 2010, Orlando, FL, Paper # AIAA 2010-2519
34. Tarpey, T. (2011), "On the Meaning of Parameters in Approximation Models," *Journal of Probability and Statistical Science*, **9**, 139-151.
35. Reiss, P. T., Huang, L., Chen, Y-H., Huo, L., Tarpey, T. and Mennes, M. (2012), "Massively Parallel Nonparametric Regression, with an Application to Developmental Brain Mapping," to appear in *Journal of Computational and Graphical Statistics*.
36. Chatterjee, Sritheran, Watts, and Tarpey, (2012) "Estimating Palo Verde irrigation district evapotranspiration using MODIS enhanced vegetation index and micrometeorological data," *Remote Sensing and Hydrology (Proceedings of a symposium held at Jackson Hole, Wyoming, USA, September 2010)* (IAHS Publ. 352).
37. Petkova, E., Tarpey, T., Huang, L., and Deng, L. (2012), "Interpreting Meta-Regression: Application to Recent Controversies in Antidepressants' Efficacy," submitted for publication.

Professional Service:

- Associate Editor of *The American Statistician*, July 2005 to present.
- Served on NIMH review panels in February 2007, August 2007, February 2008, June 2009, October 2009; Refereed a B-Start NIH grant proposal in July 2004 & April 2005.

- Refereed National Science grant proposals from South Africa (2003) and from Chili (2000).

- I have refereed papers for the following journals:

The Annals of the Institute of Statistical Mathematics,

The Annals of Statistics,

Biometrika,

Computational Statistics and Data Analysis,

Communications in Statistics,

Geosphere,

Metrika,

Journal of the American Statistical Association,

Journal of Classification,

Journal of Computational Statistics and Data Analysis,

Journal of Multivariate Analysis,

Journal of the Royal Statistical Society, Series B,

Journal of Times Series Analysis,

Journal of Statistical Education,

Journal of Statistical Planning and Inference,

Statistics and Computing,

Statistics Education Research Journal,

Statistics & Probability Letters.

Funded Grant Proposals:

NIMH Grant Number: R01 MH068401, 2005-2008

Principal Investigator: Tarpey, Thaddeus PhD

Project Title: "Identifying Placebo Responders in Drug Treated Subjects"

Invited Talks:

"Unsupervised Learning to Describe Heterogeneity in Psychiatric Conditions," at the Joint Statistics Meetings, San Diego, California, July 29, 2012.

"Modeling Placebo Response Via Infinite Mixtures," at the Joint Statistical Meetings in Vancouver, BC, August 5, 2010.

- “Optimal Partitioning for Linear Mixed Effects Models: Applications to Identifying Placebo Responders,” presented at the International Chinese Statistical Association in Indianapolis, Indiana, June 23, 2010.
- “Thinking Outside the Box: Are All Models Right?” presented at Procter & Gamble’s Statistics CoP External Seminar Series, April 13, 2010, Cincinnati, Ohio.
- “All Models are Right, Most are Useless,” presented at the Joint Statistics Meetings in Washington, D.C., August 4, 2009.
- “Curriculum Guidelines for Bachelor Degrees in Statistical Science,” at the University of Dayton, April 22, 2005.
- “Identification of Placebo Responders Among Drug Treated Subjects,” at the ENAR Biometric Society Meetings, Tampa, Florida, March 31, 2003.
- “Identifying Placebo Responders Among Depressed Subjects Treated with Active Drug - A Functional Data Approach,” at 2002 Annual Columbia-Penn Statistics in Psychiatry Symposium, April 30, 2002 at the University of Pennsylvania.
- “Clustering Functional Data: Application to Identification of Placebo Responders,” at Columbia University Department of Statistics, April 29, 2002.
- “Clustering Functional Data,” at Columbia University Biostatistics Department, October 18, 2001.
- Invited Panelist at the session entitled “Implementing the USEI Guidelines for Undergraduate Programs in Statistics,” during the Joint Statistics Meetings in Atlanta, Georgia, August 6, 2001 (organizer: Allan Rossman).
- “Cluster Analysis for Functional Data,” at Miami University, Oxford, Ohio, November 2, 2000.
- “Measuring Intraspecies Genetic Diversity using RAPD–PCR Profiles,” at Purdue University Statistics Department, September 14, 1999.
- “Self–Consistency and Principal Components,” presented at the Carnegie Mellon University Statistics Department, December 2, 1998.
- “Self–Consistency and Principal Components,” presented at Indiana University Mathematics Department, September 11, 1997.
- “The Statistical Analysis of Multiple Endpoints in Clinical Trials,” presented at the 1997 Procter & Gamble Symposium, October 6, 1997 (with Michael Meredith).
- “Self–Consistency: A Unified Theoretical Framework for Principal Components, Principal Curves, and Principal Points,” Ohio State University Statistics Department, January 14, 1997.

“Introductory Statistics Courses in the Current Climate of Change,” presented to the 1996–1997 Class of Project NExT Fellows at the Summer Workshop, University of Washington, Seattle, Washington, August 9, 1996.

“Self–Consistency: A Fundamental Concept in Statistics,” Indiana University – Purdue University at Indianapolis, Department of Mathematical Sciences, March 27, 1996.

“Principal Points and Self–Consistent Points of Elliptical Distributions,” Joint Statistics Meetings, San Francisco, California, August 10, 1993.

Other Talks:

“A Modelling Controversy: Finite Mixture or Homogeneous,” presented at the Joint Statistics Meetings in Salt Lake City, July 31, 2007.

“Latent Regression Analysis,” contributed talk at the Joint Statistics Meetings, Seattle, Washington, August 2006.

“Functional Data Analysis Issues for Identifying Placebo Response in Drug Treated Subjects,” presented at ENAR Biometric Society Meetings, Austin, Texas, March 22, 2005.

“Identification of Placebo Responders Among Drug Treated Subjects,” presented at the Joint Statistical Meetings in San Francisco, CA, August, 2003.

“Allometric Extension,” presented at the Joint Statistical Meetings in New York City, August 2002.

“Cluster Analysis for Functional Data,” contributed paper at the Joint Statistics Meetings in Indianapolis, Indiana, August 13, 2000.

“Curriculum Guidelines for Bachelor of Arts Degrees in Statistical Science,” presented at the Undergraduate Statistics Education Symposium (USEI) at the Joint Statistics Meetings in Indianapolis, Indiana, August 12, 2000.

“Spline Bottles,” presented at a special contributed session of the Joint Statistics Meetings in Baltimore, Maryland, August 8, 1999.

“Characterization Results on Self–Consistency for Elliptical Distributions,” presented at the Joint Statistics Meetings in Anaheim, California, August 11, 1997.

“Self–Consistency and Orthant Symmetry,” contributed talk at the Joint Statistical Meetings, Orlando Florida, August 16, 1995.

“Self–Consistency: A Unified Theoretical Framework for Principal Components, Principal Curves, and Principal Points,” contributed talk at WNAR, Los Angeles, California, June 1994.

“Self-Consistent Patterns – Approximating Multivariate Distributions by Representative Points,” contributed talk at the ASA Winter Meeting, Atlanta, Georgia, January 1994.

“A Comparison of Estimators for Principal Points of Univariate Distributions,” contributed talk at the 4th Conference of the International Federation of Classification Societies, Paris, France, September 4, 1993.

“Two Principal Points for Symmetric, Strongly Unimodal Distributions,” contributed talk at WNAR 1993 Meeting, Laramie, Wyoming, June 30, 1993.

Poster Presentations

March 20, 2010 Eastern North American Region (ENAR) of the International Biometric Society in Miami, Florida:

- “Characterizing Heterogeneity: An Application of Principal Point Classification to Autism Data,” with Jing Wang and Eva Petkova;
- “Meta-Regression and the Ecological Fallacy in Depression Treatment Studies,” with Eva Petkova;
- “Variability of Placebo Effects Across Antidepressant Clinical Trials,” with Eva Petkova.

Columbia University/New York State Psychiatric Institute Biostatistics Workshop Seminars:

“Resampling Approach to Multiple Comparisons and Adjusted p -Values,” May 14, 2002.

“Measuring Intraspecies Genetic Diversity Using RAPD-PCR Profiles,” March 26, 2002.

“Principal Variables for Discrete Distributions,” February 5, 2002.

“Allometric Extension Models for Multivariate Regression Models,” October 2, 2001.

Statistics Workshop Talks at Columbia/New York State Psychiatric Institute – A series of statistics lectures for the *Core Grant to Enhance Neuroscience Transfer (CoGENT) Biostatistics and Data Management and Networking (BaDMan) Core*:

“Logistic Regression (Part 1),” October 24, 2001.

“Logistic Regression (Part 2),” October 31, 2001.

“Principal Components,” November 7, 2001.

“Multiple Endpoints,” November 28, 2001.

“Factor Analysis,” January 30, 2002.

“Principal Variables,” February 13, 2002.

“Towards Understanding Placebo Response Among Drug Treated Patients,” February 27, 2002.

“Discriminant Analysis,” April 3, 2002.

“Resampling Approach to Multiple Comparisons: An Introduction to the Bootstrap,” May 8, 2002.

Seminars and Colloquiums at Wright State University:

“All Models are Right, Most are Useless,” April 30, 2009.

“A Modeling Controversy: Homogeneous or Mixture?” (with Dong Yun), October 25, 2006.

“Remarks on k -Means Clustering of Functional Data,” May 4, 2006.

“Parametric k -means Algorithm,” November 8, 2005.

“Latent Regression Analysis,” October 21, 2005.

“Estimation in Regression Models with Externally Estimated Parameters,” November 18, 2004.

“The Exaggeration Effect: Students’ Estimation of Exam Performance,” (with Doug Andrews), ASA Dayton Chapter Meeting, November 21, 2003.

“Allometric Extension for Multivariate Regression Models,” October 4, 2002.

“Identifying Placebo Responders Among Subjects Treated with an Active Drug,” September 27, 2002

“Principal Variables for Discrete Multivariate Data,” February 21, 2001.

“Curriculum Guidelines for an Undergraduate Major in Statistics,” January 10, 2001.

“Estimating the Average Slope of a Polynomial,” May 15, 2000.

“Principal Points for Functional Data,” April 10, 2000.

“Measuring Intraspecies Genetic Diversity using RAPD–PCR Profiles,” with Dr. Dan Krane, September 27, 1999.

“Self–Consistency Algorithms,” April 19, 1999.

“The PRESS Statistic for Restricted Least Squares and Spline Bottles,” October 21, 1998.

“Parallel Principal Components Revisited: Borel’s Paradox and Allometric Extension,” October 7, 1998.

“Self-Consistency and Principal Components II,” January 13, 1998.

“The EM Algorithm for Elliptical Distributions,” January 27, 1998.

“Adjusted p -values and Proc MULTTEST,” October 15, 1997.

“Multiple Endpoints,” October 1, 1997.

“The Disappearance of .400 Hitting in Baseball – A Discussion of S. J. Gould’s Book ‘Full House’,” April 17, 1997.

“Parallel Principal Axes,” February 10, 1997.

“Self-Consistency and Principal Components,” October 15, 1996.

“Asymptotic Results on Principal Points,” October 17, 1995.

“A Look at Symmetric Multivariate Distributions,” January, 24, 1995.

“Self-Consistency: A Unified Approach to Principal Components, Principal Curves and Principal Points,” September 1994.

Service to the Department, College and University:

Director of the Statistics Program 2009–present. Recent highlights of this position:

- Coordinated the transition of the statistics curriculum from quarters to semesters
- Developed a proposal for a track for Biostatistics in the current Applied Statistics master degree program, including developing two new biostatistics courses for this program.
- Developed a 5-year BS/MS program in statistics

Appointed to a Biostatistics Task Force in the Fall 2011 to work on the development of a biostatistics graduate program.

Serving on the Interdisciplinary Review Committee for the ES PhD program since Fall 2008 (Appointed by the director of the ES PhD Program). This committee is charged with advising the director on issues related to program policies and curriculum (revisions, petitions), student progress (awards, disciplinary actions), and other issues related to the administration of the program.

Elected to the Department of Mathematics and Statistics Steering Committee (1996/7, 1997/8, 1999/2000, 2008/2009, 2010/2011)

Elected to the Graduate Council for a 3-year term 2010–2013.

Appointed Fall 2011 to the committee to investigate forming a new interdisciplinary PhD program in the College of Science and Mathematics

Appointed Spring 2011 to be the point-of-contact person for the NSF LEADER consortium's mentoring program.

Elected to the College of Science and Mathematics Promotion and Tenure Committee for the 2006-2007, 2007-2008 and 2010-2011 academic years.

Elected to the Faculty Senate in the Spring 2005 and Spring 2006. Served on the Executive Council of the Senate for a two-year term.

Serving on the College of Science and Mathematics Petitions Committee, 2002-2009.

Advisor to undergraduate Statistics majors 2002-2011.

Served on search committees for new faculty. Co-chaired the search committee for a new biostatistics faculty member 2011-2012 academic year.

Elected to the Search Committee for Chair of the Department of Mathematics and Statistics: 1997/98, 1999, 2006. Served as Chair of the search committee for Department Chair in 2008.

Appointed to a committee to write the Department's Bylaws in 2000 and then to revise the Bylaws in Fall 2006.

Chaired a sub-committee of the Statistics Committee to draft a proposal for a B.S. Degree in Applied Statistics in 2004/5. This new undergraduate degree was approved in 2006.

Organized the Statistics Seminars (1996-2000)

Served on the Colloquium Committee (1994 - 2000 and 2003/4) and hosted numerous external speakers

I have assisted in numerous consulting projects at the WSU Statistical Consulting Service as well as several projects involving environmental science PhD students.

Serving as the faculty advisor to the Wright State University Ultimate Frisbee Club: Fall 2004 to 2006.

Prepared and administered the Methods portion of the comprehensive exams for the Applied Statistics Master Degree candidates, January 1997, 1998, and the Theory portion of the exam in 2003 and 2004, winter 2005.

Professional Activities:

Served on the PhD committees of Arijit Guin (defense March 13, 2009, Ramya Ramanathan (defense March 18, 2009), and Sumantra Chatterjee (defense September 28, 2009) in the Environmental Sciences PhD Program; Hemanth Amarchinta in Mechanical Engineering (defense June 10, 2010); Cartic Ramakrishnan in the Kno.e.sis at WSU (defense August 2008), Major Donald Duckro at the Air Force Institute of Technology, Department of Mathematics and Statistics (defense August 26, 1999)..

Currently serving on the committees of Edward Council, Jeremy Heath, Holly Schlotman, Samantha Davis, Shishir Adhikari, and Angie Clayton in Environmental Sciences PhD program.

Served on the Master thesis committees of the following students: Lee W. Ott (defended Summer 2001), David Sternberg (defended April 2002), Sara F. Walker (defended March 11, 2005), Vikramvarun Adikarapatti (defended April 2007).

Elected President of the Dayton Chapter of the American Statistical Association for 1996 and re-elected for 1997. Elected President in November 2004 and April 2010, elected vice-president spring 2007. Elected Treasurer of the Dayton Chapter of the ASA, October, 2002 (2 year term).

Project NExT Fellow (1995)

Judge at Western District Ohio Science Day (April 5, 1997, March 30, 1996 and April 1, 1995).

Teaching Activities.

- Wrote an online textbook for STT 363, Engineering Statistics which can be found at:

<http://www.wright.edu/~thaddeus.tarpey/stt363.html>

Revisions periodically, in particular, in the Fall 2011 the text was revised to include the software Matlab.

- Developed a new graduate course for the Environmental Sciences PhD program: “ES/STT 714: Statistical Modeling for Environmental Data,” and wrote an online text for the course which can be found at:

<http://www.wright.edu/~thaddeus.tarpey/es714.html>

This text was revised in the Spring of 2011 for incorporating data analysis using the R software.

- Developed online course notes that are used as the text for the course STT 430/630 (cross-listed with ES 706) Biostatistics.

Courses Taught:

Undergraduate

STT 160 Statistical Concepts

STT 264/265 Elementary Statistics

STT 363 Engineering Statistics

STT 360/560, STT 361/561 Applied Statistics
STT 367 Introduction to SAS

Graduate

STT 430/630, ES 706 Biostatistics
STT 461/661, STT 462/662 Theory of Statistics
STT 464/664 Computational Statistics
STT 466/666, STT 467/667 Statistical Methods
STT 696: SAS and Statistics for Biomedical Sciences (Fall 2004)
ES/STT 714 Statistical Modeling for Environmental Data
STT 721 Sampling Design
STT 744 Applied Multivariate Analysis
STT 762 Topics in Linear Models
STT 767 Applied Regression Analysis

Independent Studies: STT 686 Geostatistics in the Spring of 2005 (2 students) and STT 786 Growth Mixture Models in the summer of 2005 (1 student), Survival Analysis in the summer of 2006 (2 students), STT 786 Linear Mixed Models in Fall 2006 (2 students), STT 786 Topics in Mixed Models (1 student) in Summer 2007. Longitudinal Data Analysis (1 student) in Summer 2008, Environmental Science PhD student lab rotation in Summer 2008.

Professional Organizations:

American Statistical Association

Institute of Mathematical Statistics

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