

## **CHARLES R. MANN ASSOCIATES, INC.**

**ANALYTIC SERVICES  
FOR THE LEGAL PROFESSION**

TELEPHONE 202/466-6161  
FACSIMILE 202/466-6050  
E-MAIL CRMANN@MANNASSOCIATES.COM

SUITE 800  
1111 14<sup>TH</sup> STREET, N.W.  
WASHINGTON, D.C. 20005-5666

### **CHARLES R. MANN, Ph.D.**

Dr. Mann is President of Charles R. Mann Associates, Inc., a Washington, D.C. based consulting firm which provides statistical, econometric and data processing services.

He has extensive experience in the fields of applied and mathematical statistics. He has been on the faculty of the University of Maine and The George Washington University. While at the University of Maine, The George Washington University, and the University of Missouri (as a graduate student) he provided statistical consulting services to faculty, students, government and private sector organizations.

Dr. Mann specializes in the application of statistics to legal matters in general with a concentration on the area of equal opportunity analysis. He provides expert witness services and statistical guidance in connection with a wide range of litigation. Dr. Mann also designs and develops Affirmative Action Plans, Utilization Analyses, Adverse Impact Analyses and Work Force Analyses for large and small corporations as well as for municipal governments and Federal agencies. He is a frequent speaker to legal audiences on the applications of statistics to the law.

Other areas in which Dr. Mann provides consulting services include statistical analysis, applied probability, survey design, questionnaire design, mathematical and econometric modeling, and mathematical statistics.

Dr. Mann has conducted research in the areas of probability density estimation, isotone regression and Bayesian techniques. He served as President of the Society of Sigma Xi, the Scientific Research Society, at The George Washington University and as Chair of the Professional Ethics Committee of the American Statistical Association.

#### **EDUCATION**

- Ph.D. Statistics, University of Missouri, 1969
- M.S. Mathematical Statistics, Michigan State University, 1963
- B.S. Applied Mathematics, Polytechnic University  
(then the Polytechnic Institute of Brooklyn), 1961

## PROFESSIONAL EXPERIENCE

Charles R. Mann Associates, Inc.  
Washington, D.C.  
President, 1977-

The George Washington University  
Washington, D.C.  
Professorial Lecturer in Statistics, Spring and Fall 1991

Group Operations, Inc.  
Washington, D.C.  
Vice President, 1975-1977  
Head, Statistical Services Division, 1973-1977

The George Washington University  
Washington, D.C.  
Assistant Professor of Statistics, 1969-1973

University of Maine  
Orono, Maine  
Instructor of Mathematics, 1963-1964

## PROFESSIONAL SOCIETIES

American Statistical Association  
Ad Hoc Committee on Ethics, 1980-1986  
Committee on Professional Ethics, 1986-1993  
Vice-Chair, 1989-90  
Chair, 1993  
Member, Ad Hoc Committee on Justice and Criminal Statistics  
(Years unknown)  
Reviewer, American Statistician

Institute of Mathematical Statistics

Annual Election Teller, 1987

Washington Statistical Society  
Board Member and Co-Chair, Social and Demographic Section, 1986-1987

Personnel Testing Council of Metropolitan Washington  
Co-Chair, Legal Committee, 1986-1987

The Society of Sigma Xi, The Scientific Research Society,  
President, George Washington University Chapter, 1973-1974

## PROFESSIONAL HONORS

Elected to Fellow of the American Statistical Association in 1996

*For excellence in the application of statistical methodology in the legal and regulatory communities; and for leadership in developing awareness and consideration of professional ethics in the practice of statistics.*

Year 2000 Awards for Scientific Achievement, Mathematics and Computer Sciences Award

*For innovative application of statistics to legal matters, particularly equal opportunity analysis and related areas, including survey and questionnaire design and mathematical and econometric modeling.*

Elected to Fellow of the Washington Academy of Sciences in 2001

## PUBLICATIONS/PRESENTATIONS

"Bayesian Estimation of Probability Density Functions"; University of Missouri; 1969 (Ph.D. dissertation).

"The Statistician as an Expert in Equal Opportunity Analysis" in An Equal Employment Opportunity Practice Guide, 1977; Federal Bar Association; Washington, D.C.; March, 1977 (Invited).

"A Lawyer's Guide to Statistics" in An Equal Employment Opportunity Practice Guide, 1979; Federal Bar Association; Washington, D.C.; March, 1979.

Reprinted in An Equal Employment Opportunity Practice Guide, 1980; Federal Bar Association; Washington, D.C.; March, 1980.

"Abuses of Statistics in Civil Rights Litigation"; Invited by The American Statistical Association for presentation at the 1980 Joint Statistical Meetings, Houston, Texas. It appears in the Proceedings of The Social Statistics Section of The American Statistical Association; August, 1980.

A.S.A. Interim Code of Conduct (Authored by A.S.A. Ad Hoc Committee on Professional Ethics) Amstat News (1980) 69.

Reprinted in An Equal Employment Opportunity Practice Guide, 1981; Federal Bar Association; Washington, D.C.; October, 1981.

"The Original Concept of Underutilization; An Unreasonable Expectation" in An Equal Employment Opportunity Practice Guide, 1981; Federal Bar Association; Washington, D.C.; October, 1981.

"Management of Statistical Data Processing"; Operations Research/Management Science in the 1980s Symposium; The George Washington University; November, 1981.

"Two or Three Deviations from the Standard Rule; A Statistical Generalization of Castaneda and Hazelwood", Fifth Annual Conference on Equal Employment Opportunity Cosponsored by The Federal Bar Association and the Bureau of National Affairs, Washington, D.C., 1982.

"Analysis of Underutilization and the 1980 Census; an Update", Sixth Annual Conference on Equal Employment Opportunity, Cosponsored by the Federal Bar Association's Council on Labor Relations and EEOC/OFCCP Committee and The Bureau of National Affairs, Inc.; Washington, D.C.; September, 1983.

A.S.A. Ethical Guidelines for Statistical Practice (Authored by A.S.A. Ad Hoc Committee on Professional Ethics) American Statistician (1983) 37(1).

"Underutilization and Discrimination: Do They Have a Meaningful Relationship?"; Affirmative Action Consultation Presentation; United States Commission on Civil Rights; Washington, D.C.; March 6-7, 1985. (Invited)

"The Role of the Statistician in Legal and Management Decisions" in An Equal Employment Opportunity Practice Guide, 1985; Federal Bar Association; Washington, D.C.; September, 1985.

A.S.A. Ethics Casebook No. 1 (Authored by Committee) Amstat News (1985) 115.

A.S.A. Ethics Casebook No. 2 (Authored by Committee) Amstat News (1985) 420.

Moeller, John F. and Mann, Charles R. "Issues in Estimating Economic Losses from Wrongful Actions: Wrongful Discharge Cases" presented to Individual Rights and Responsibilities in the Workplace Seminar on Abusive Discharge at the invitation of The District of Columbia Bar Association; Washington, D.C.; March, 1986.

Moeller, John F. and Mann, Charles R. "Assessment of Economic Loss in the Matter of Plaintiff v. Defendant (A Case Study)", Ninth Annual Conference on Equal Employment Opportunity Cosponsored by The Federal Bar Association and The Bureau of National Affairs; Washington, D.C.; September, 1986.

Self Evaluation and the EEO Audit Panel; Sixth Annual National Conference on EEO in the Public Sector, The National Employment Law Institute and The International Personnel Management Association; Arlington, VA; September, 1986.

"EEO Assessments Using Statistical Analysis"; Tenth Annual Conference on Equal Employment Opportunity sponsored by The Bureau of National Affairs, Inc. and The Federal Bar Association; Washington, D.C.; September, 1987.

"EEO Assessments Using Statistical Analysis"; Seventh Annual Conference on Equal Employment Opportunity in the Public Sector sponsored by The National Employment Law Institute and The International Personnel Management Association; Washington, D.C.; September, 1987.

"Utilization Analysis"; entry in Encyclopedia of Statistical Sciences, Volume 9, 1988, John Wiley & Sons, New York.

Seldon, Robert C. and Mann, Charles R. "Primer on the Application of Statistics to Litigation". Federal Bar News and Journal 1988, 35, 352-354.

"Analysis of Underutilization and the 1980 Census; An Update"; A Bureau of National Affairs, Inc. Workshop on How to Prepare an Effective and Legal Affirmative Plan; Cincinnati, OH, Philadelphia, PA and Atlanta, GA; March, 1988.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; The National Employment Law Institute Eighth Annual National Conference on EEO in the Public Sector; Washington, D.C.; September, 1988.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring" and "EEO Assessments Using Statistical Analysis"; Fifth Annual Conference on Trends, Attitudes and Experiences in Equal Opportunity sponsored by the National Association of Public Sector Equal Opportunity Officers; Washington, D.C.; October, 1988.

"Quantification of Affirmative Action -- Utilization Analysis"; Affirmative Action Alert Seminar presented by Semmes, Bowen & Semmes and Charles R. Mann Associates, Inc.; Bethesda, MD; March, 1989.

"Expert Witness Testimony Demonstration"; Presentation by The Prettyman-Leventhal American Inn of Court, Washington, D.C. March, 1989

"Title VII and Statistics"; Equal Employment Opportunity: A Quarter Century of Title VII Conference; Bureau of National Affairs and IIT Chicago-Kent College of Law's Kenneth M. Piper Lecture Series; Chicago, IL; April, 1989.

"Statistics and Labor Law"; presented to The Federal Bar Association's Judiciary Section; Washington, D.C.; April, 1989.

Affirmative Action in Employment and Set-Asides Panel; Twelfth Annual EEO Briefing Conference -- 1989; The Federal Bar Association; Washington, D.C.; June, 1989.

How to Prepare An Effective and Legal Affirmative Action Plan Panel; Sixth Annual Homecoming Conference, National Association of Public Sector Equal Opportunity Officers; Phoenix, AZ; October, 1989.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring" and "Affirmative Action in Set-Asides; Statistical Aspects"; Sixth Annual Homecoming Conference, National Association of Public Sector Equal Opportunity Officers; Phoenix, AZ; October, 1989.

"A Lawyer's Guide to Statistics"; presented to the Workshop on Proof in Discrimination, U.S. Department of Labor Directorate of Civil Rights; Baltimore, MD; November, 1989.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; American Law Firm Association; Scottsdale; March, 1990.

"EEO Investigations Using Statistical Analysis"; Seventh Annual Conference, National Association of Public Sector Equal Opportunity Officers; Las Vegas, Nevada; September, 1990.

"Recent Developments in Statistical Aspects of Equal Opportunity and Affirmative Action Analysis"; Seventh Annual Conference, National Association of Public Sector Equal Opportunity Officers; Las Vegas, Nevada; September, 1990.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; Tenth Annual National Conference on EEO in the Public Sector; The National Employment Law Institute; Washington, D.C.; September, 1990.

"Quantification of Affirmative Action: Utilization Analysis"; Tenth Annual National Conference on EEO in the Public Sector; The National Employment Law Institute; Washington, D.C.; September, 1990.

"Recent Developments in Assessment, Selection and Affirmative Action"; American Law Firm Association; Atlanta, Georgia; October, 1990.

"Quantification of Affirmative Action: Utilization Analysis" presented to Workplace Law Seminar, Reed Smith Shaw & McClay; Tysons Corner, VA; November, 1990.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; presented to Workplace Law Seminar, Reed Smith Shaw & McClay; Tysons Corner, VA; November, 1990.

Moeller, John F. and Mann, Charles R. "Evaluation of Economic Loss In Wrongful Discharge, Part I". The Job Description June 1991, Vol. 3, No. 1; The Defense Research Institute, Inc.

Trial Strategies Panel; The Federal Bar Association Labor Law and Labor Relations Section, and Federal Litigation Section presentation of "Trial Practice and Procedure Under the Civil Rights Act of 1991"; Bethesda, MD; April, 1992.

Moeller, John F. and Mann, Charles R. "Evaluation of Economic Loss In Wrongful Discharge, Part II". The Job Description April 1992, Vol. 4, No. 1; The Defense Research Institute, Inc.

Developments in Affirmative Action Panel; Twelfth Annual EEO in Federal, State & Local Government Conference, The National Employment Law Institute; Washington, D.C.; October, 1992.

"Adverse Impact Calculation"; 1993 Affirmative Action Briefing, The National Employment Law Institute; Seattle, WA, San Francisco, CA, Santa Fe, NM, and Chicago, IL; October, 1992 and Washington, D.C.; November, 1992.

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; Fifteenth Annual Federal Bar Association EEO Briefing Conference -- 1992; Philadelphia, PA; November, 1992.

"Quantification of Affirmative Action: Utilization Analysis"; Fifteenth Annual Federal Bar Association EEO Briefing Conference -- 1992; Philadelphia, PA; November, 1992.

"An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis"; Fifteenth Annual Federal Bar Association EEO Briefing Conference -- 1992; Philadelphia, PA; November, 1992.

Trial Strategies, Civil Rights Act of 1991 Panel; Fifteenth Annual Federal Bar Association EEO Briefing Conference -- 1992; Philadelphia, PA; November, 1992.

Table of Random Numbers with Instructions for Amphibian Sampling in Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians 1992, Smithsonian Institution Press, Washington, D.C.; Heyer, R. M. Donnelley R. McDiarmid L. Hayek and M. Foster (Eds.) Volume I in Series. (In Press)

Table of Random Numbers with Instructions for Mammal Sampling in Measuring and Monitoring Biological Diversity: Standard Methods for Mammals, Smithsonian Institution Press, Washington, D.C.; Heyer, R. M. Donnelley R. McDiarmid L. Hayek and M. Foster (Eds.) Volume II in Series. (In Prep.)

Table of Random Numbers with Instructions for Reptile Sampling in Measuring and Monitoring Biological Diversity: Standard Methods for Reptiles, Smithsonian Institution Press, Washington, D.C.; Heyer, R. M. Donnelley R. McDiarmid L. Hayek and M. Foster (Eds.) Volume III in Series. (In Prep.)

The Ethical Statistician, Amstat News (1993) No. 201.

The Ethical Statistician, with L. Hayek Amstat News (1993) No. 202.

The Ethical Statistician, Amstat News (1993) No. 203.

"Panel Discussion on the Current Law of Affirmative Action Plans" (Panelist), Sixteenth Annual Federal Bar Association EEO Briefing Conference -- 1993; Arlington, VA; November, 1993. Three revisions of earlier papers were presented as part of this program:

"Recent Developments in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring"

"Quantification of Affirmative Action: Utilization Analysis"

"An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis"

"EEO Ethics Panel" (Panelist), Sixteenth Annual Federal Bar Association EEO Briefing Conference -- 1993; Arlington, VA; November, 1993.

"A Workshop on Ethical Issues in Statistical Expert Testimony; Expert Testimony in the courts, Congress and federal agencies" (Steering Committee Member and Participant), American Statistical Association NSF Ethics and Statistical Experts Project, January 1994.

The Ethical Statistician, Amstat News (1993) No. 204.

The Ethical Statistician, Amstat News (1994) No. 205.

"Statistical Aspects of Affirmative Action Program Requirements and Monitoring"; presented at The 1994 International Personnel Management Association Conference; Rockville, MD; June, 1994.

"An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis"; presented at The 1994 International Personnel Management Association Conference; Rockville, MD; June, 1994.

"Tell Me Your Secret -- Random Response Methodology"; Beta Research Corporation Newsletter; Syosset, NY; June, 1994.

"Diversity and Affirmative Action -- Practical Strategies for Diversifying the Workplace and Surviving OFCCP Reviews" (Moderator), Eighteenth Annual Federal Bar Association EEO Briefing Conference -- 1995; Arlington, VA; November, 1995.

"EEO Practice and Litigation -- Expert Witnesses in Employment Litigation" (Panelist), Eighteenth Annual Federal Bar Association EEO Briefing Conference -- 1995; Arlington, VA; November, 1995.

"The Legal Statistician"; presented at the American Statistical Association, Chesapeake Chapter; Aberdeen, MD; April, 1996.

"The Use of Statistical Experts in Federal Sector Labor Proceedings"; presented at Advanced Labor and Employment Law Practitioners' Seminar, Air Force Judge Advocate General School; Maxwell Air Force Base, Alabama, May 6-8, 1996.

"Affirmative Action Today" (Panelist), Nineteenth Annual Federal Bar Association EEO Briefing Conference; Arlington, VA; February, 1997.

"Recent Development in the Statistical Aspects of Affirmative Action Program Requirements and Monitoring; Quantification of Affirmative Action: Utilization Analysis; An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis" sponsored by Semmes, Bowen & Semmes, Columbia, MD, January, 1998

"Quantification of Affirmative Action: Utilization Analysis; An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis"; Maryland Bar Association Conference sponsored by Semmes, Bowen & Semmes, Baltimore, MD, April, 1998.

"Statistical Aspects of Affirmative Action Program Requirements and Monitoring; Quantification of Affirmative Action: Utilization Analysis; An Introduction to Statistical Hypothesis Testing Applied to Adverse Impact Analysis"; Employment Law: Approaching the 21<sup>st</sup> Century sponsored by Arter & Hadden, Washington, DC; May, 1998.

"Expert Potpourri I: What Do They Do, and How Can They Help You?"; 17<sup>th</sup> Annual Employment Law & Litigation Update sponsored by Georgetown University Law Center Continuing Legal Education; Washington, DC; April, 1999.

"Tell Me Your Secret - Random Response Methodology"; Beta Research Corporation Newsletter, Syosset, NY; June, 1999.

"Adverse Impact Analysis"; presented at the Personnel Testing Council of Metropolitan Washington, D.C. February 7, 2000.

Statistical Consulting in the Legal Environment Chapter in Statistical Science in the Courtroom (J. L. Gastwirth ed.), New York; Springer-Verlog; Expected August, 2000.

"Workplace - 2000"; Thelen Ried & Priest LLP, Labor & Employment Department Conference (Panelist); Washington, DC, March 23, 2000.

Statistical Consulting in the Legal Environment; presented at the Washington Academy of Sciences, Board of Managers; Washington, D.C., January 11, 2001.

“Statistics in the Courtroom”; Roundtable Discussion Leader with J. Gastwirth;  
International Biometric Society ENAR; 2002 Spring Meeting, Arlington, VA, March 18, 2002.

Statistics in the Courtroom; Law, Probability and Risk (2005) Ready for publication.