

CURRICULUM VITAE

Robert W. Hayden

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EDUCATIONAL BACKGROUND

Post-Ph.D. study

The following courses were taken at Statistics.com. They are approximately equivalent to a one-week full-time workshop, or a university course of at least one credit.

R Programming: Intermediate, April 2015
R Programming: Intro. I, March 2015
Designing Valid Studies, February 2015
R Programming: Intro. II, February 2015
Introduction to Python for Analytics, February 2014
Data Munging with SQL and R, March 2013
Visualization in R with ggplot2, July 2012.
Introduction to Statistical Modeling, January 2011.
Randomization and Exact Tests, April 2010.
Sample Size Using PASS Software from NCSS, February 2010.
Graphics in R, November 2009.
Bootstrap Methods, September 2009.
Fundamentals of Epidemiology, June 2009.
Ecological and Environmental Sampling, March 2009,
Statistical Process Control, January 2008.
Introduction to Resampling Methods, August 2007.
Survey Analysis, August 2007.
Introduction to Biostatistics, July 2007.
Introduction to R: Statistical Analysis, April 2007.
Introduction to Regression, March 2007.
Statistical Analysis Using R, March 2007.
Modeling in R, January 2007.
Environmental Impact Assessment, October 2006.
Categorical Data Analysis, June 2006.
Time Series Forecasting, March 2006.
Introduction to R: Data Handling, February 2006.
Resampling Methods, January 2006.

At Iowa State University, summer 1982:

Analysis of Variance and Design of Experiments
Independent Study in SPSS

Academic degrees

Ph.D. (joint major in mathematics and education), 1981, Iowa State University, Ames, IA 50011. My dissertation was a history of the "new math" movement in the United States, done under W. B. Rudolph. A brief review of this appeared in the Summer 1982 issue of *The Journal of Mathematical Behavior*. The dissertation can be found at <http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=8426&context=rtd>

M.S. (mathematics), 1975, University of Connecticut, Storrs, CT 06268.

B.S. (mathematics), 1972, MIT, Cambridge, MA 02139.

EMPLOYMENT

St. Johnsbury Academy, Advanced Summer Workshops for AP Statistics teachers, July, 2010-2012.

Statistics.com, 612 N. Jackson St., Arlington, VA 22201. (Developing and teaching online statistics courses part-time including an introductory sequence accredited by the American Council for Education and subsequently adapted for teachers of AP Statistics), 2005-2015, now retired.

Plymouth State University, Department of Mathematics, Plymouth, NH 03264. Associate Professor, 1988-2004, Assistant Professor, 1985-1988, now retired.

Connecticut Business and Industry Association, Hartford, CT 06103. Senior Writer in an NSF-funded project to develop innovative high school mathematics textbooks, 1993-1997.

Winona State University, Department of Mathematics and Statistics, Winona, MN 55987. Assistant Professor, 1981-1985.

Southwest State University, Department of Mathematics and Computer Science, Marshall, MN 56258. Assistant Professor, 1980-1981. (Temporary, three-quarter time position while writing dissertation.)

Iowa State University, Department of Mathematics, Ames, IA 50011. Instructor, 1978-1980, Teaching Assistant, 1975-1978.

University of Connecticut, Department of Mathematics, Storrs, CT 06268. Teaching Assistant, 1973-1975.

Dynatech R/D, 99 Erie St., Cambridge, MA 02139. Research Assistant, 1964-1972.

INTERESTS

Teaching Areas/Interests

Furthering quantitative literacy in our society, statistics (including AP Statistics), curriculum development, innovative and interdisciplinary courses, applied mathematics (including discrete mathematics and mathematical modeling).

Research Areas/Interests

How students learn, using writing and technology in teaching mathematics and statistics, use of real data and computers in teaching statistics, use of the Internet for professional development and the improvement of teaching, history of mathematics education, histories of philosophy, science, mathematics, engineering, and technology.

PUBLICATIONS AND PRESENTATIONS

Books

Minitab Guide to accompany *Statistics and Data Analysis: An Introduction* by Siegel and Morgan, Plymouth State College, 1996-2001.

High school mathematics textbooks with W. Berlinghoff and C. Sloyer, all originally published by Connecticut Business and Industry Association Education Foundation and The Hartford Alliance for Mathematics and Science Education, under a grant from the National Science Foundation:

MATH Connections Iib (second semester of grade ten), 1995.

MATH Connections Iia (first semester of grade ten), 1994.

MATH Connections Ib (second semester of grade nine), 1994.

MATH Connections Ia (first semester of grade nine), 1993.

(These have since been commercially published by *It's About Time*, with a second edition in 2009.)

Discrete Mathematics: Its Nature and Uses, Plymouth State College, 1985-2000.

Invited Papers and Book Chapters

Allan J. Rossman & Robert W. Hayden, Interview With Robert W. Hayden, *Journal of Statistics Education*, 24:1, 38-50, 2016.

<http://amstat.tandfonline.com/doi/pdf/10.1080/10691898.2016.1165024>

Statistics: From College to Pre-college, *Chance*, American Statistical Association, Washington, DC, 2015.

<http://chance.amstat.org/2015/11/college-to-pre-college/>

Emergency Relief for the First-Time AP Statistics Teacher, North Carolina School of Science and Mathematics 2007 Statistics Institute, Durham, NC.

http://courses.ncssm.edu/math/Stat_Inst/Stats2007/Bob%20Hayden/Relief.html

10% Assumption for Inference, AP Central, 2004.

https://apcommunity.collegeboard.org/group/apstatistics/resource-details?p_p_id=contentItem_WAR_aptecontentitemportlet&p_p_lifecycle=0&p_p_col_id=column-2&p_p_col_count=2&p_r_p_1243656882_resourceId=119881928

Advice to Mathematics Teachers on Evaluating Introductory Statistics Textbooks, a chapter in *Resources for Undergraduate Instructors Teaching Statistics*, Thomas L. Moore, ed., Mathematical Association of America, Washington, D.C., 2000. <http://statland.org/MyPapers/MAAFIXED.PDF>

Searching the Mathematical Literature from the Boondocks, *Notes from MathSci*, Vol. 2, No. 1 (February 1993), pp.1 and 3.

Using Writing to Improve Student Learning of Statistics, a chapter in *Using Writing to Teach Mathematics*, A. Sterrett, ed., Mathematical Association of America, Washington, D.C., 1990.

With W. J. Roberts:

Using Birthday Data to Integrate Statistics into the K-12 Mathematics Curriculum, *The Statistics Teacher Network*, Winter 1995, pp. 3-5.

With W. B. Rudolph:

Will There Be a New "New Math?" *Journal of Curriculum Studies*, Vol. 16(1984), pp. 311-316. A brief review of this article appeared in the March 1985 issue of *The College Mathematics Journal*.

Other Papers

Using Writing to Teach Statistics, *Proceedings of the Section on Statistical Education* of the American Statistical Association, 1992, pp.188-190.

Using Writing to Improve Student Learning of Statistics, *Plymouth State College Journal on Writing Across the Curriculum*, Vol. 1, No. 1 (June 1989), pp.3-10. <https://wac.colostate.edu/journal/vol1/hayden.pdf>

With F. Kianifard:

Preparing High School Mathematics Teachers to Teach Statistics, *The American Statistician*, Vol. 46, No. 4 (November 1992) pp.290-295.

With R. P. Tye:

The Thermal Conductivity and Electrical Resistivity of Copper and Copper Alloys in the Molten State, *High Temperatures - High Pressures*, Vol. 11(1979), pp. 597-605.

With R. P. Tye and S. C. Spinney:

Thermal Conductivity of Selected Alloys at Low Temperatures, *Advances in Cryogenic Engineering*, Vol. 22(1977), pp. 136-144.

The Thermal Conductivity of a Number of Alloys at Elevated Temperatures, *High Temperatures - High Pressures*, Vol. 4(1972), pp. 503-511.

Invited Reviews

MAA Reviews is the online repository of book reviews for the Mathematical Association of America. I have reviewed dozens of books for them. You can find a current list of my reviews at <https://www.maa.org/search/node/Robert%20W.%20Hayden>

Reviews of a dozen books for *The Journal of Biopharmaceutical Statistics*, 2002-1009.

Review of *The Minitab Handbook*, in *The Statistics Teacher Network*, 2000.

Review of Two Collections of Data for Use in a First Course in Statistics, *The American Statistician*, Vol.50, No.2 (May 1996), pp. 168-169.

Review of *A Handbook of Small Data Sets*, in *The Statistics Teacher Network*, 1995.

Review of EdStat-L, in *The American Statistician*, Vol. 48, No. 4 (November 1994), pp.305-306.

Review of *Introduction to Statistical Reasoning*, in *The American Statistician*, Vol. 53, No. 1 (February 1994), p.86

Presentations and Workshops

More Stats Activities for the Common Core, ATMNE, Killington, VT, 24 October 2013

Statistical Inference in the Common Core, NHTM, Manchester, NH, 5 April 2013

Using Simulations to Teach and Do Statistics , Advanced workshop for AP Statistics teachers (with Dave Bock), St. Johnsbury, VT, 2012

Multiple Regression, Advanced workshop for AP Statistics teachers (with Dave Bock), St. Johnsbury, VT, 2011

Advanced workshop for AP Statistics teachers (with Dave Bock), St. Johnsbury, VT, 2010

Advanced workshop for AP Statistics teachers, MA, MMSI at Bentley University, August 2009

Planning a Statistical Literacy Program at the College Level: Musings and a Bibliography, Joint Statistical Meetings, Toronto, 2004.

Don't Just Teach Exploratory Techniques: Use Them! Beyond the Formula Statistics Conference, Rochester, NY August 2001.

Assessing Introductory Statistics Textbooks, Assessment in Statistics Courses conference in Boston, MA, April 1997.

The Statistical Preparation of Future Mathematics Teachers (with my student Michelle M. Lamarre), MAA regional meeting, Amherst, MA, June 1996.

A Student Survey of the Statistical Preparation of Future Mathematics Teachers (with my student Michelle M. Lamarre), New England Statistics Symposium, Worcester, MA, April 1996.

Using Real Data to Teach Statistics, MAA national meeting, Burlington, VT, August 1995.

Participated in a panel discussion on the implications of the NCTM Standards for college teaching, MAA national meeting, Burlington, VT, August 1995.

Contributed a data set with analysis to the examples given attendees at the Workshop on the Advanced Placement Test in Statistics, San Antonio, TX, July 1995.

Presentation on the **MATH Connections** curriculum project to NH ATMNE, Plymouth, NH, April 1994.

Presentation with Bill Roberts on Matrices and Data Analysis with Low Cost Software for the Secondary Core Curriculum Project at PSC, June 1993.

Presentation with Bill Roberts on using birthday data to teach statistics, NH ATMNE, Keene, NH, March 1993.

Using Writing to Teach Statistics, ASA national meeting in Boston, August 1992.

Preparing High School Mathematics Teachers to Teach Statistics, ASA national meeting in Louisville, KY, January 1992.

From Old Math to New Math to Discrete Math: A History of Abstract Algebra in the College Curriculum, MAA national meeting in Atlanta, January 1988.

Using Writing Assignments to Improve Student Learning of Mathematics and Statistics, MAA national meeting in Atlanta, January 1988.

Modeling Pizza Prices, MAA national meeting in Atlanta, January 1988.

PROFESSIONAL ORGANIZATIONS

Memberships

American Statistical Association
Society for Industrial Archeology (Northern and Southern New England Chapters)

Service (national only)

Member of the AP Statistics online community since 1996 when the course began. I primarily answer questions about statistical content.

Member of an informal advisory panel for the development of Stats Homework, a free statistical software package for students. <https://sites.berry.edu/vbissonnette/index/stats-homework/>

Chair, Program Committee, Spring Meeting, 1996, Northeastern Section of the Mathematical Association of America.

Member, Program Committee, Spring Meeting, 1995, Northeastern Section of the Mathematical Association of America.

Member, Editorial Board, *Journal for Statistics Education*, 1995-1999.

Organized (with Mary Parker of Austin, Texas, Community College) a contributed papers session "Making Statistics Come Alive" for the national MAA meeting in San Francisco, January 1995.

Member, Joint Committee of the Mathematical Association of America and the American Statistical Association, 1994-1997.

Member, Steering Committee, Statistical Thinking and Teaching Statistics (S.T.A.T.S.) Project, 1993-1997.

COURSES TAUGHT

High school algebra I, algebra II, and geometry (to college students), college algebra and trigonometry, problem solving in algebra using technology, precalculus, mathematics and the humanities, first year of the standard calculus sequence, short course in calculus for business, finite mathematics with business applications, mathematical modeling (freshman level general education course), discrete mathematics (freshman-sophomore level), discrete probability (calculus based), introductory statistics (service course and calculus-based course), analysis of variance, multiple regression (a course for business majors), multiple regression (a course for statistics and mathematics majors), survey sampling (independent study), statistics for teachers (in-service graduate course team taught with Dr. Farid Kianifard), mathematics for elementary school teachers, number systems of mathematics (axiomatic), linear algebra, differential equations, mathematical modeling (seminar for senior mathematics majors), *Home, Work, and Play in 19th Century Urban America* (team taught with historians William L. Taylor and E. John B. Allen)

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