

Martin Flashman
Department of Mathematics
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EDUCATION

Boston Latin School, graduated June, 1964.

Brandeis University: B.A., Cum Laude with Honors in Mathematics, June, 1967.

M.A. (Mathematics), June, 1969; Ph.D. (Mathematics), May, 1974.

New York University School of Law: J.D., February, 1978.

Also attended: University of Notre Dame, 1967-1968; Bates College, 1963-1965.

TEACHING EXPERIENCE

Humboldt State University, Professor of Mathematics, 1993-present.

Associate Professor of Mathematics, 1986-1993; Assistant Professor, 1981-1986.

Academic Senate, 2008- present.

University Curriculum Committee, 2007- 2009. Chair- 2008-9.

University Grievance Committee, 2006 - present. Chair, 2007- present.

University Center, Board of Directors, 2006-2010.

Pre-law Advisor, 2005- present. [Advisor: Pre-law Club, 2007- present]

HSU Math Contest Co-Director, 1983 - present.

Kieval Lecture Committee, Chair: 1983-1991, 1992-2002; member: 2007- present.

Math Department Prize and Scholarship Committee, 1998-present.

Bard College, Assistant Professor of Mathematics, 1975 - 1981.

Department Chair: January, 1978 - June, 1980.

Director of Academic Computing, Spring, 1979 - June, 1981.

OTHER TEACHING EXPERIENCE

College of the Redwoods, part-time, Spring, 1983-Spring, 1987, Spring 2009, Spring, 2010.

Occidental College, Los Angeles, CA, Visiting Professor of Mathematics, 2005-2006.

University of California, Berkeley, Visiting Assistant and Associate Professor, Summers, 1986-1990, 1992.

University of Toronto, Visiting Professor, Fall, 1988.

University of San Francisco, Visiting Lecturer, Summer, 1984.

Baruch College, CUNY, Adjunct Assistant Professor of Mathematics, 1974-1975.

Mount Holyoke College, Instructor of Mathematics, 1971-1972.

Brandeis University Upward Bound, Teacher, Consultant, Tutor, 1967, 1970, 1973, 1974.

Brandeis University, Teacher of Undergraduate Mathematics, 1968-1971, 1972-1973.

A Partial List of Courses Taught

For syllabi and materials of my current courses see <http://users.humboldt.edu/flashman/>
and for older courses see <http://users.humboldt.edu/flashman/Courses/oldcourses/courses.html>

Developmental Courses:

Pre-Algebra
Beginning Algebra
Intermediate Algebra
Geometry

Lower division Courses:

Algebra and elementary functions (with
Trigonometry)
Finite Mathematics
Contemporary Mathematics:
 For All Practical Purposes
 A Visual Approach to Math
Calculus I, II, and III
Calculus for the Biological Sciences &
Natural Resources
Calculus for Business and Economics
Elements of Linear Algebra
Introduction to Mathematical Proofs

Upper Division Courses and Tutorials:

Introduction to Algebraic Structures
Abstract Algebra II
Linear Algebra
Advanced Calculus
Complex Variables
Differential Equations
Topology
Problem Solving Seminar
Geometry (Projective and Euclidean)
Mathematical Logic and Set Theory
History of Mathematics
Philosophy of Mathematics
Tutorial in Writing Proofs
Computer Programming in APL/ Fortran
Game Theory
Real Analysis
Linear Origramming

OTHER PROFESSIONAL ACTIVITY

Yale University Mathematics Department Visiting Fellow, Fall, 1980.

N.E.H. Fellow, Summer, 1980. N.E.H. Seminar on "Frege and the Philosophy of Mathematics,"
U.N.C., Chapel Hill.

Academic Interests: History, Philosophy and Methodology of Mathematics; Mathematics
Education (Calculus Reform); Applications of the Computer to Instruction; Foundations of
Mathematics; Geometric and Algebraic Topology; Social Science Applications of Mathematics
(especially Game Theory and Economics).

Computer Activity: Active with use of technology in instruction including use of Winplot,
Wingeom, and Geometer's Sketchpad.

Programming Languages: Basic, Fortran, APL. Have taught courses in Fortan and APL.

Member: Mathematical Association of America (MAA)

Current and Recent Projects: [2002-present]

- "Square Roots: Adding Philosophical Contexts and Issues to Enhance Understanding." JMM, New Orleans, January 8, 2011
- "Two Different Approaches to Getting Students Involved in Writing Proofs ." JMM, New Orleans, January 07, 2011
- "The Articulation of Mathematics-A Pragmatic/Constructive Approach to The Philosophy of Mathematics." Preliminary report. MAA Session on Philosophy of Mathematics for Working Mathematicians, Joint Math Meetings, San Francisco, CA, January, 2010.
- "Which Came First? The Philosophy, the History, or the Mathematics?" Mathfest 2009, Portland Oregon, August 6, 2009
- Reader for Calculus Advanced Placement Examination, Kansas City, MO, June, 2009.
- "The intersection of the history and philosophy of mathematics." A panel discussion. Moderator. Joint Math Meetings, Washington, DC, January, 2009.
- "Visualizing Linear Functions". Presentation at Annual Fall Conference, Oct. 25, 2008, CMCFN, Arcata, CA.
- Park City Mathematics Institute Undergraduate Faculty Program in Algebraic Geometry, Participant, July 6-26, 2008.
- Reviewer for Houghton Mifflin, Bracken Intermediate Algebra Chapters Review, Summer, 2008.
- Expert adviser for Cambridge University Press on Proposal for a new linear algebra undergraduate textbook. May, 2008.
- Chair, Philosophy of Mathematics Special Interest Group Mathematical Association of America (POMSIGMAA), (1-07 to 1-09, past-chair for 2-09 to 1-10)
- Teaching and the philosophy of mathematics. MAA Minicourse #13: Sunday January 6, and Tuesday January 8, 2008. Joint Mathematics Meetings, San Diego, CA.
- "Math and tonality for the fretted instruments: an introduction with connections to logarithms!", CMC³ Conference, Monterey, CA, November 30, 2007.
- "Mathematics, Music, and the Guitar (Preliminary Report)", MathFest 2007, San Jose, CA. Aug. 4, 2007
- "Visualizing Mappings with Technology (Preliminary Report)", MathFest 2007, San Jose, CA. Aug. 5, 2007
- "The Continuum Hypothesis: A Look at the History of the Real Numbers in The Second Millennium." Math Department Special Seminar, Brandeis University, July 12, 2007
- "Math, Music, and the Guitar", presentation to combined precalculus classes at Boston Latin School, June 7, 2007, Boston, MA.
- "What Place Does Philosophy Have in Teaching Mathematics?" Preliminary report. MAA Contributed Paper Session on the Philosophy of Mathematics, Jan. 6, 2007
- "Real Numbers: Models and The Proof of The Continuum Hypothesis " Math Dept. Colloquium, CSU Sacramento, November 9, 2006.
- "Math, Music, and the Guitar." Presentation at CMC Far North Conference, Oct. 21, 2006. Arcata, CA.
- "Math and Music" Presentation at MESA, Cabrillo College, Sept. 14, 2006. Santa Cruz, CA.
- "Life on a Torus: Some of the Mathematics from the World of Pacman", CSUMB Colloquium, Sept. 15, 2006, Monterey, CA.
- "Mathematics and Music: A Colloquium/Concert Presentation" Occidental College Colloquium, April 21, 2006
- "Visualizing Partial Derivatives without Graphs." MAA Jan. 14, 2006

- "The Square Root of 2, Pi, and the King of France: Ontological and Epistemological Issues Encountered (and Ignored) in Introductory Mathematics Courses.." MAA Jan. 12, 2006

- Lead faculty for Mathematics, California IMPAC Project, 2003- 2007.

- Lead faculty for CSU, Mathematics Project on Lower Division Requirements (POL) Project, January, 2004.

- Disciplinary Facilitator for Mathematics for the CSU Lower-Division Transfer Patterns (LDTP) Project, 2004 - 2005.

- Workshops on using Winplot:

"Winplot: Freeware for Precalculus through Differential Equations," workshop at AMATYC Conference, Salt Lake City, Nov. 15, 2003. A similar presentation will be made at the CMC³ Conference, December, 2004 and the CMC³-South Conference in March, 2005.

- Participated in On-line NSF workshop "Authoring Online Interactive Materials in Mathematics" July 16-19, 2002.

[On-line Materials on Mapping figures developed with Ken Yanosko and Yoon Kim](#)

- *The Sensible Calculus Book* - web and text materials. This book was under contract to West Educational Publishing, released from contract by Brooks/Cole (ITP), January, 1997. Currently in discussions with the Mathematics Association of America . Added co-author Tami Matsumoto, September, 2006.

To find out more about the Sensible Calculus Project:

http://users.humboldt.edu/flashman/senscalca_x.html

- Articles and presentations on philosophy of mathematics, music and mathematics, calculus reform, introducing history, probability and economics in calculus instruction, and mapping (transformation) figures for visualizing functions.

Many of these can be viewed on-line by opening the link:

<http://users.humboldt.edu/flashman/Recent.html>

PAST PROJECTS, PRESENTATIONS, PUBLICATIONS, ETC.

General

- Numerous contributed papers, panels, and workshops presented at the International Conferences on Technology in Collegiate Mathematics, the annual Joint Mathematics Meetings of the AMS and the MAA., AMATYC Annual Conferences, and CMC³ Conferences.
- Numerous workshops for HSU faculty and students on using technology: Winplot, X(PLORE), and HP 48 calculators.
- Book and Media Editor: UME TRENDS, News and Reports on Undergraduate Mathematics Education, Jan., 1989 - Jan., 1996. I wrote a reviewing column, "Noteworthy Books and Such" that appeared three times annually.
- Co- PI for NSF Grant - AMATYC, "Workshops for Implementing the AMATYC Standards," 1996-1998.
- Referee/Reviewer: National Science Foundation, American Mathematical Monthly, College Mathematics Journal, PRIMUS, Journal for Research in Mathematics Education, and commercial publishers.
- Consultant to CSU, Sacramento on Mathematics Department Program Review: Spring, 1996. Consultant Workshop on Calculus Reform at Math Department retreat. CSU Fullerton. August 23, 1994.
- Organizer/Owner, Calc-reform e-mail list at the American Mathematical Society, e-math.ams.org, 1991- present.

HSU Mathematics Department Colloquia and Non Course Presentations:

A Sampling since 1995. Many are on-line. See :<http://users.humboldt.edu/flashman/Recent.html>

- "Visualizing Linearity: Part II Alternatives to Lines and Planes. Thursday, January 27,, 2011
- "The Articulation of Mathematics: An Everyperson Pragmatic/Constructive Approach to The Philosophy of Mathematics" April 8, 2010
- "Visualizing Linearity: Alternatives to Line Graphs" , Thursday, September 3, 2009
- "Models, Numbers, and Measure Theory: The Independence of The Continuum Hypothesis. In memory of my mentor, Jean van Heijenoort", Sept. 2, 2004.
- "The Door Swings Both Ways: Making Calculus Sensible with Economics or Economics Sensible with Calculus", December 11, 2003.
- "Mathematics Beyond Good and Evil: Duality in Geometry, Algebra, and Calculus!" November 21, 2002.
- "What Is Topology and Why Is It Useful?" March 7, 2002.
- "The Possible and the Impossible: Some examples of the use of models and their consequences" Dec. 6, 2001.
- "The Continuum Hypothesis: A Look at the 20th Century History of the Real Numbers from Cantor to Cohen/Scott/Solovay" Sept. 14, 2000.
- "Life on a Torus: Some of the Mathematics from the World of Pacman" Sept. 30, 1999.
- "The History of Logarithms: A glimpse of some highlights." Feb. 4, 1999.
- "Mathematical Encounters with the Number 7." Sept. 10, 1998.
- "Solving Calculus Problems without Calculus." April 2, 1998.
- "Dynamic Visualization of Calculus." September 18, 1997.
- Organized HSU Mathematics Colloquium Series with Michael Goodman on T.S. Kuhn and the Philosophy (and History) of Science and Mathematics, including presentation on the impact of T.S. Kuhn's views on the philosophy and history of mathematics. October 24 and 31, 1996.

- "Numbers, Real Numbers, and Decimals." October 12, 1995.
- "Comparing Graphing Calculators: Math on the HP 48G and the TI85." (With Jeff Haag) Feb. 16, 1995.

Participant to NSF Sponsored Programs:

Symposium on Implementing Reform in Mathematics, Engineering and the Sciences; Scottsdale, Arizona, June, 1996.

Open Forum on Calculus Reform, U. of Arizona, Tempe, Arizona, Sept. 8-10, 1995.

"Preparing for a New Calculus", at the University of Illinois Allerton Conference Center, April 22-25, 1993.

Mathematicians and Education Reform Network (NSF - sponsored) workshop on Changing the Culture, Berkeley, CA, March 4-7, 1993.

Mathematical Association of America CUPM Subcommittee on Calculus Reform and The First Two Years (CRAFTY) Related Activities:

- Member, 1993-1999. Friend of CRAFTY, 1999- 2006.
- Designed and managed CRAFTY web pages, 1994-2003.
- Organizer, Chair of Panel Discussion on "What Are Colleges Doing with Students with AP Placement?" at Joint Mathematics Meetings, Phoenix, Arizona, 2004.
- Organizer of Contributed paper session "Interactive and Dynamic Visualization for Precalculus and Calculus" at MAA MathFest, 1998 in Toronto, August, 1998.
- Member of CRAFTY panel on "Calculus Reform" at ASEE meeting in Seattle, WA, June, 1998.
- Organizer of Contributed paper session "Planning Reformed Calculus Programs: Experiences and Advice" at Joint Mathematics Meetings, Orlando, FL, January, 1996.
- Member of panel on "Calculus, the Dynamics of Change" at Joint Mathematics Meetings, Orlando, FL, Jan. 1996.
- Section Editor and contributor to *Calculus, The Dynamics of Change*, A. Wayne Roberts, Editor, MAA Notes, Number 39. January, 1996. Edited and wrote notes for Part II on Planning, pp. 41-65, Calculus on the Internet, pp 165-166.
- Organizer, Chair Panel Discussion on "Institutional approach to calculus reform- Getting everyone on board," at Joint Mathematics Meetings, San Francisco, January, 1995.

Other Publications, Workshops, and Presentations (Since 1992.)

Many of these are on-line through my web site: <http://users.humboldt.edu/flashman/Recent.html>

- "Historical Motivation for a Calculus Course: Barrow's Theorem" in *Vita Mathematica: Historical Research and Integration with Teaching*, edited by Ronald Calinger, MAA Notes, No. 40, 1996.
- "Concepts to Drive Technology," in *Proceedings of the Fifth Annual International Conference on Technology in Collegiate Mathematics*, Addison-Wesley, 1994, pp 166-172.
- "Probability: Connecting Concepts in Precalculus and Calculus," in *Preparing for a New Calculus: Conference Proceedings*, Anita Solow, editor, MAA Notes No. 36, 1994, pp 108-110.
- *Isometries*, a module for use in geometry courses, with Orville Bierman, William Blank, Xiaoyun Ma, Delene Perley, Hanna Sandler, and Jean Spath in: *Geometry II, Faculty Advancement in Mathematics Series*, The Consortium for Mathematics and its Applications, 1993, pp. 1-21.
- "Cuisenaire Rods Go to College" with P. Z. Chinn, G. Colyar, and E. Migliore, *PRIMUS*, Vol. II, No. 2 (June 1992), pp. 118-130.

- [“A Sensible Calculus”](#) Editorial, The UMAP Journal (1990) 11 : 93-96.

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- Winplot 2 Hour Workshop at AMATYC Conference, Salt Lake City, Nov. 15, 2003
 - Special Seminar and Workshop on "Visualizing Functions in Calculus I to III" and Colloquium on "Probability and Calculus" at U. of Arizona, Tempe, Arizona, September 7, 1996.
 - Three hour Workshop on HP48G at CMC³ Conference, Monterey, CA, December, 1995
 - Introduction to X(PLORE) workshop at the Nineteenth Annual Conference of AMATYC, Boston, November, 1993.
 - Workshop with David Meredith (SFSU), "An introduction to X(PLORE)" at the Fifth Annual ICTCM, Chicago, November, 1992.
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- "Estimating Integrals Using Polynomials: A Tale of Two Problems (and a little history as well)" Eureka High School, May 27, 2004.
 - "Winplot -Freeware for Pre-calculus through Calculus III and Differential Equations" ICTCM Nov. 2, 2002
 - "Using Probability to Understand Calculus ", MAA Jan. 7, 2002
 - "The Continuum Hypothesis: A Look at the History of the Real Numbers in The Second Millennium.", MAA Jan. 7, 2002
 - “Technology and the History of Mathematics”, ICTCM 12, Nov. 6, 1999
 - “Dynamic Visualization of PreCalculus and Calculus Concepts with Geometer's Sketchpad” AMATYC Conference Workshop. Nov. 5, 1998
 - "Dynamic Visualization of Calculus I-III with The Geometers' Sketchpad" MAA Mathfest '98.
 - "Dynamic Visualization of Calculus: More Concepts to Drive Technology," a one hour Address at ICTCM 11, New Orleans, Louisiana, November 21, 1998. .
 - "Dynamic Visualization of Precalculus and Calculus Concepts with Geometer's Sketchpad," a two hour Workshop, AMATYC 24th Annual Conference, November 5, 1998. Portland, Oregon.
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- Consultation visit and Presentation "Numbers, Real Numbers, and Decimals" at Special Mathematics Department Colloquium, Catholic University, Washington, DC, April 11, 1997.
 - "Visualizing Functions with Scalar Fields" presented at a contributed papers session, ICTCM 9, Reno, Nevada, November 9, 1996.
 - "Two departments: A fictional tale of change and illusion." presented at the Contributed paper session "Planning Reformed Calculus Programs: Experiences and Advice" for Joint Mathematics Meetings, Orlando, FL, January, 1996.
 - "Connecting Themes between sensible Precalculus and Calculus Programs: Estimation, Rates, and Probability." CMC³ Conference, Monterey, CA, December, 1995.
 - "Probability as a Recurring Theme in Calculus," an Invited One Hour Address at the Fourth Conference on Teaching of Mathematics, sponsored by Addison-Wesley and the NSF, San Jose. June, 1995.
 - Presentation on “Mathematics and Liberal Arts General Education” at the State of Jefferson Mathematics Congress, May, 1995.
 - MAA Poster Session Presentation on "The Sensible Calculus Project" at the Joint Mathematics Meetings in Cincinnati, Ohio. January, 1994.
 - "Sensible Calculus Program Reforms: Concepts and Planning" at CMC³ Conference, Monterey, CA, December 3, 1993.

- Special seminar on "Calculus and Technology," Northeastern University, Boston, November, 1993.
- Invited Panel presentation on departmental planning for calculus reform. Conference on Teaching Calculus, Harvard University. Summer, 1993.
- "Probability in Teaching Precalculus," at the Winter Mathematics Conference of the California Mathematics Council to the Far North, February, 1993.
- "Visualizing Probability in The First Year of Calculus" at the MAA session on "Use of Visualization in the Teaching of Mathematics," at the joint mathematics meetings of the AMS and MAA, San Antonio, Texas, January, 1993.
- "Concepts to Drive Technology," invited 1 hour presentation, at the Fifth Annual International Conference On Technology in Collegiate Mathematics (ICTCM), Chicago, November, 1992.
- Co-organizer of Poster Session at the Fifth Annual ICTCM, Chicago, November, 1992.
- "Historical Motivation for A Calculus Course: Barrow's Theorem." A 30 minute address made at the quadrennial meeting of the International Study Group on the Relations Between History and Pedagogy of Mathematics in Toronto, CA, August 13, 1992.