Name:	**Elliot A. Tanis**	Date:	August 10, 2009
Present Affiliation:	Hope College	Title:	Professor Emeritus of Mathematics
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1. Personal Data:

Spouse's Name:	Elaine Buteyn
Date of Birth:	April 23, 1934
Children:	Philip Alan, Joel Elliot, Ellen Marie
Son-in-law:	Habeeb Awad
Daughters-in-law:	Gretchen Schoon, Katherine Schoon
Grandchildren:	Sophie Anne Awad, Simon Eliot Awad, Jon Elliott Tanis, Harper Lain Schoon Tanis

2. Education: Colleges attended with degrees, field, institutions, and dates:

   Central College, Pella, Iowa, B.A., Mathematics, 1956

   University of Iowa, M.S., Mathematics, 1960

   University of Iowa, Ph.D., Mathematics, 1963

3. Date of initial appointment and appointment to various academic ranks at Hope College:

   Appointed Associate Professor of Mathematics, 1965

   Promoted to Professor of Mathematics, 1971

   Interim Dean for the Natural Science Division, 1993

4. Other teaching experience (give institution, your rank, and dates):

   University of Iowa, Teaching Assistant, 1959–1963

   University of Nebraska, Assistant Professor, 1963–1965

5. Other professional experience (where, when, and in what capacity):

   Associate Director of NSF Summer Institute at Hope College, 1967, 1968

   Director of NSF Summer Institute at Hope College, 1969

   Co-director of the Hope College – Meiji Gakuin University May/June Term in Japan, 1987, 1992-94, 1996

6. Consulting work or other outside work in the past two years:

   Statistical consulting for several colleagues

   Development of Preliminary Actuarial Exam Test Units for ACT

   Served on a NCA accreditation team in each of 1984 – 1994, 1997, 1999

   Presented two 3–day workshops in basic statistics for members of the Quality Assurance Division of Amway Corporation in 1991

7. Memberships in professional societies (state grade, offices held, committee assignments, and other major responsibilities):

   Michigan Section, Mathematical Association of America [Vice Chairperson (1975-76), Chairperson (1976-77), Executive Committee Member (1975-78, 1983-84), Governor (1989-92)]

   The Mathematical Association of America

   American Mathematical Society (became a member on March 31, 1962)

   American Statistical Association

   Elected to Membership in Society of Sigma Xi on February 23, 1979.

   Pi Mu Epsilon

   International Association for Statistical Education (IASE) for many years.

8. Honors and awards:

   Received the 1996 Michigan Section, MAA, Distinguished Service Award.

   Received Award for Distinguished College or University Teaching of Mathematics, Michigan Section, MAA, 1992

   Winner of the H.O.P.E. (Hope's Outstanding Professor Educator) award in 1989

   Dictionary of International Biography, October, 1969.

   Outstanding Educators of America, May 17, 1971.

   Listed in American Men and Women of Science

   Listed in Who's Who in the Midwest and Who's Who in Technology Today

   Invited to be a Waterloo Maple ambassador

9. Committee and special assignments at Hope College:

   Chairperson, Department of Mathematics, 1971-1982, 1995-97

   Member of Hope College Board of Trustees, 1975-1977

   Faculty Moderator, 1981-1983

   Chaired the strategic planning task force: Christ and Campus, Worship and Study, 1989

   Committee on Netherlands–American Cultural and Academic

   Alumni Award Committee

   Chair, Baccalaureate/Commencement Committee, 1992-1997

   Chair, Environmental Science Program Task Force

   Member, Assessment Committee

   Member, Faculty Evaluation Form Committee

   Member, Japanese Study Task Force

10. Community Involvement:

    Church Affiliation: Member of Third Reformed Church

11. Recent activities during summer periods outside of Hope College appointments:

12. Leaves of absence and sabbatical leaves while at Hope College:

    Sabbatical leave at the University of Lancaster, Lancaster, England, during the second semester, 1973-74.

    Sabbatical leave in Holland, Michigan, during the spring semester, 1980–81, with travel in Europe during the summer, 1981.

    Sabbatical leave in Holland, Michigan, during the spring semester, 1990–91, with travel in China, Japan, and India during April and May, 1991.

    Sabbatical leave in Holland, Michigan, during the spring semester, 1997–98, with travel in Japan and Singapore during June.

13. Grants under your direct supervision (give title, agency, amount, and period):

    "A Microcomputer Laboratory for Use in Teaching Statistics," Undergraduate Instructional Improvement Program, NSF, $20,630, 1979-1981.

14. Grant proposals submitted during the past few years (title, agency, amount, and period):

    NSF Grant (with David Carothers and others): Environmental Mathematics Throughout the Curriculum, $32,129, Fall, 1994.

15. List specific contributions to classroom or laboratory instruction at both undergraduate and graduate levels (e.g., new courses, new laboratories, new methods of instruction, new methods of evaluation, etc.):

    Computer Based Laboratory for Statistics, first using large computers and now using personal computers and *Maple*.

16. Publications, performances, shows (give titles, references, locations, etc.):

    Publications:

    - "An Iterated Procedure for Testing the Equality of Several Exponential Distributions," *American Statistical Association Journal*, Volume 58, 1963 (with Dr. Robert V. Hogg), pp. 435-443.
    - "Linear Forms in the Order Statistics from an Exponential Distribution," *The Annals of Mathematical Statistics*, Volume 35, 1964, pp. 270-276. (My dissertation.)
    - "Theory of Probability and Statistics Illustrated by the Computer," *Proceedings of the 1972 Conference on Computers in the Undergraduate Curricula*, June, 1972, pp. 513-520.
    - "A Card Matching Problem," *The Mathematical Log*, December, 1972.
    - "A Computer Laboratory for Mathematical Probability and Statistics," *Proceedings of a Fourth Conference on Computers in the Undergraduate Curricula*, June, 1973, pp. 416-426.
    - "A Statistical Hypothesis Test for the Classroom," *The Mathematics Teacher*, November, 1973, pp. 657-658.
    - "Mathematical Probability and Statistics Computer Laboratory," *International Journal of Mathematical Education in Science and Technology*, April, 1974, pp. 717-722.
    - *Laboratory Manual for Probability and Statistical Inference*, 1976, distributed by CONDUIT, The University of Iowa.

- *Probability and Statistical Inference* with Robert V. Hogg, 1977, Macmillan Publishing Company.
- "A Computer-Based Laboratory for Mathematical Statistics and Probability," *Proceedings of Computer-Based Science Instruction*, papers submitted for a NATO Advanced Study Institute on Computer-Based Science Instruction, Louvain-la-Neuve, Belgium, July, 1976, published in 1977, pp. 45-8.
- "A Computer-Based Laboratory for Mathematical Statistics and Probability," *Proceedings of an Eighth Conference on Computers in the Undergraduate Curricula*, June, 1977, pp. 339-346.
- *Laboratory Manual for Probability and Statistical Inference*, revised and distributed by CONDUIT, The University of Iowa, 1978.
- "Concepts in Probability and Statistics Illustrated With the Computer," *Michigan Association of Computer Users for Learning Journal*, Fall, 1978, pp. 6-17.
- "Circular Coordinates and Computer Drawn Designs," written with student Lee Kuivinen, *Mathematics Magazine*, May, 1979, pp. 175-178.
- "Tessellations and the Tektronix 4051," *Proceedings of the National Educational Computer Conference*, June, 1979, pp. 233-236.
- "Simulations In the Game of Craps," *Creative Computing*, September, 1979, pp. 140-141. This article was also published in *Computers in Mathematics: A Sourcebook of Ideas*, 1980.
- "An Instructional Computer-Based Package for Probability and Statistics," *The American Statistician*, November, 1979, pp. 224-225.
- "Probability of Being a Loser," *Pi Mu Epsilon Journal*, Spring, 1980, pp. 107-114.
- "The Computer as an Interface Between Mathematics and Art," *Computers in Education, Proceedings of the 3rd World Conference on Computers in Education — WCCE 81*, Lausanne, Switzerland, July, 1981, pp. 177-184.
- "The Use of Microcomputers for Understanding Concepts in Probability and Statistics," *First International Conference on Teaching Statistics Abstracts*, Sheffield, England, August, 1982.
- *"Probability and Statistical Inference," Second Edition*, with Robert V. Hogg, Macmillan Publishing Company, 1983.
- "M. C. Escher and Computers," *Proceedings of the Sixth International Conference on Computers and the Humanities*, Raleigh, North Carolina, June, 1983, pp. 688-693.
- "Using Microcomputers to Illustrate Concepts in Probability and Statistics," *1983 Proceedings of the Section on Statistical Education, American Statistical Association*, Toronto, Canada, August, 1983, pp. 14-15.
- "Birthday Problem and Expected Values," *Teaching Statistics*, January, 1985, pp. 21-25.
- "A Computer-Based Laboratory for Introductory Statistics," *Second International Conference on Teaching Statistics Abstracts*, Victoria, Canada, August, 1986.
- *Statistics: I. Descriptive Statistics and Probability*, Harcourt Brace Jovanovich, Inc., 1987.
- *Statistics: II. Estimation and Tests of Hypotheses*, Harcourt Brace Jovanovich, Inc., 1987.

- "The Answer is $1 - 1/e$. What is the Question?" *Pi Mu Epsilon Journal*, Spring, 1987, pp. 387-389.
- *Probability and Statistical Inference, Third Edition*, with Robert V. Hogg, Macmillan Publishing Company, 1988.
- "Computer Simulations to Motivate and/or Confirm Theoretical Concepts," *Proceedings of the Section on Statistical Education, American Statistical Association*, San Francisco, CA, August, 1987, pp. 27-32.
- A review of *Proceedings of The Second International Conference on Teaching Statistics*, *The American Statistician*, May, 1989, 121-122.
- "Interplay Between Simulation and Theory," *Proceedings of the Third International Conference on Teaching Statistics*, 1991, 159-165. (Abstract published in 1990.)
- A review of *Proceedings of The Third International Conference on Teaching Statistics* was published in *The American Statistician*, 1992, pp. 304-306.
- "Computer Simulations to Motivate Understanding," *Statistics for the Twenty First Century*, MAA Notes, Number 26, pp. 217–225, 1992.
- "A Statistics Laboratory: Synergism Between Simulation and Theory" with Aric Dershem, April Lee, Alexey Stepanov, *Stats, The Magazine for Students of Statistics*, Fall 1992, Number 8, pp. 8–11.
- *Probability and Statistical Inference, Fourth Edition*, with Robert V. Hogg, Macmillan Publishing Company, 1993.
- "When Does the T Statistic Have a t Distribution?" with Alexey Stepanov, abstract published in *Abstracts of Papers Presented to the American Mathematical Society*, Jan. 13-16, 1993, p. 262.
- "*Maple* and the Computer Provide Synergism for Learning Probability and Statistics," with Bryan Goodman, Todd Busman, Joshua Levy, *Proceedings of the Fourth International Conference on Teaching Statistics,* 1994.
- *Probability & Statistics Explorations with MAPLE*, with Zaven A. Karian, Prentice-Hall, Inc., 1995.
- "Review of Proceedings of the Fourth International Conference on Teaching Statistics" was published in *The American Statistician,* May, 1995.
- *Probability and Statistical Inference*, Fifth Edition, with Robert V. Hogg, Prentice-Hall, Inc., 1997.
- "Use MAPLE to Simulate Observations of the First m Out of n Order Statistics," *Abstracts of Papers Presented to the American Mathematical Society*, January, 1998, in Baltimore, p. 175.
- "Using MAPLE for Instruction in Undergraduate Probability and Statistics" was published in the *Proceedings of the Fifth International Conference on Teaching of Statistics* (ICOTS-5) that was held in Singapore, June, 1998, pp. 199-204.
- "MAPLE Integrated Into the Instruction of Probability and Statistics," *Proceedings of the Section on Statistical Computing*, Joint Statistical Meetings in Dallas, Texas, August, 1998, pp. 19-24. (Abstract published in the *Joint Statistical Meeting Abstracts*, p. 282.)
- "Using MAPLE to Find p.d.f.s of Sums of Random Variables," Abstract published in *Abstracts of Papers Presented To the American Mathematical Society*, January, 1999, in San Antonio.

- *Probability & Statistics Explorations with MAPLE*, Second Edition, with Zaven A. Karian, Prentice Hall, Inc., (now Pearson Education) 1999.
- A "Review of Maple V Student Version: Release 5," *The American Statistician*, November 1999, Vol. 53., No. 4, pp. 389-392.
- *Probability and Statistical Inference*, Sixth Edition, with Robert V. Hogg, Prentice-Hall, Inc., July, 2000, (copyright 2001).
- *Probability and Statistical Inference*, Sixth Edition, Chinese language edition, with Robert V. Hogg. Taiwan: Pearson Education Taiwan and HWA Tai Publishing Co., 2003.
- *Probability and Statistical Inference*, Seventh Edition, with Robert V. Hogg, Pearson Prentice Hall, Inc., January, 2005, (copyright 2006).
- *A Brief Course in Mathematical Statistics*, with Robert V. Hogg, Pearson Prentice Hall, 2008.
- *A Brief Course in Mathematical Statistics*, with Robert V. Hogg, Indian edition published by Dorling Kindersley India Pvt. Ltd. Copyright 2009.
- *Probability and Statistical Inference*, Eighth Edition, with Robert V. Hogg, Pearson Prentice Hall, Inc., January, 2009, (copyright 2010).

Papers Presented Locally and at Meetings in Many Places:

- "Linear Forms in the Order Statistics from an Exponential Distribution" at Iowa State University, spring, 1963.
- "Linear Forms in the Order Statistics from an Exponential Distribution" at Western Michigan University, December 12, 1968.
- "Theory of Probability and Statistics Illustrated by the Computer," Third Conference on Computers in the Undergraduate Curricula, Atlanta, GA, June, 1972.
- "Theory of Probability and Statistics Illustrated by the Computer," at the GLCA Computing Symposium at Wabash University, March 7-8, 1972.
- "A Computer Laboratory for Mathematical Probability and Statistics," Fourth Conference on Computers in the Undergraduate Curricula, Claremont, CA, June, 1973.
- "Linear Forms in the Order Statistics from an Exponential Distribution" at the University of Lancaster, England, Spring, 1974.
- "Mathematical Probability and Statistics Computer Laboratory," First British Conference on Computers in Higher Education, Lancaster, England, April, 1974. Also presented this paper for a seminar at the University of Lancaster.
- "Mathematical Probability and Statistics Computer Laboratory" at the University of Groningen, The Netherlands, May, 1974.
- "Some Non-Intuitive Probabilities" (using two card matching examples) for the Michigan Council of Teachers of Mathematics Annual Meeting, October, 1974.
- "A Computer-Based Laboratory for Mathematical Statistics and Probability," NATO Advanced Study Institute on Computer-Based Science Instruction, Louvain-la-Neuve, Belgium, July, 1976.
- "A Computer-Based Laboratory for Mathematical Statistics and Probability" was presented at a special session "Using the computer in teaching undergraduate mathematics courses" at the annual meeting of the American Mathematical Society in St. Louis, January 29, 1977.

- "A Computer-Based Laboratory for Mathematical Statistics and Probability," Eighth Conference on Computers in the Undergraduate Curricula, MSU, East Lansing, MI, June, 1977.
- "Distribution Theory Illustrated Empirically," Annual Meeting of the American Statistical Association, Chicago, IL, August, 1977.
- "Concepts in Probability and Statistics Illustrated with the Computer," Second Annual Convention of The Michigan Association of Computer Users for Learning, Grand Rapids, MI, March, 1978.
- "Statistical Expected Losses in Gambling" for the Holland Rotary Club, Fall, 1978.
- "Tessellations and the Tektronix 4051," National Educational Computing Conference, Iowa City, Iowa, June, 1979.
- "Gambling, Expected Loss, and Expected Number of Plays to Lose $100" for the Noon Kiwanis Club on August 28, 1979.
- "M. C. Escher, Mathematician and Artist," Fourth Annual Conference of the Michigan Association for Computer Users in Learning, Grand Rapids, MI, March, 1980. Also gave this talk for the Century Club in Holland, April 4, 1980.
- "M. C. Escher, Plane Symmetry Groups, and the Tektronix 4051," Annual Meeting of the Michigan Section of the Mathematical Association of America, Holland, MI, May 3, 1980. Also gave this talk at Alma College, October 16, 1980.
- "The Computer as an Interface Between Mathematics and Art," 3rd World Conference on Computers in Education - WCCE 81, Lausanne, Switzerland, July, 1981. (This talk was also presented at Central College, Pella, Iowa, January 15, 1981.)
- "The Computer as an Interface Between Mathematics and Art" (Including Graphic Works of M. C. Escher) at a Western Michigan University Colloquium, March 18, 1981.
- "Mathematics and Art" at Calvin College, October, 1981.
- A Poster, "The Use of Microcomputers for Understanding Concepts in Probability and Statistics," at the First International Conference on Teaching Statistics, Sheffield, England, August, 1982.
- "Using Microcomputers to Illustrate Concepts in Probability and Statistics," Annual Meeting of the Mathematical Association of America, Denver, CO, January, 1983. (This talk was also presented at the Annual Meeting of the Michigan Section of the Mathematical Association of America, Oakland Community College, May, 1983.)
- "Mathematical Aspects of the Works of M. C. Escher," Fourth Conference on Mathematics from a Christian Perspective, Wheaton College, May, 1983.
- "M. C. Escher and Computers," Sixth International Conference on Computers and the Humanities, Raleigh, NC, June, 1983.
- "Using Microcomputers to Illustrate Concepts in Probability and Statistics" at Michigan State University, February 15, 1983.
- "Using Microcomputers to Illustrate Concepts in Probability and Statistics," American Statistical Association Annual Meeting, Toronto, Canada, August 16, 1983. Also was a Round Table Discussion Leader at this meeting in Toronto, August 15-18, 1983 on "Use of Microcomputers in Teaching Statistics."
- "M. C. Escher, Tessellations, and Computers," Association of Independent Michigan Schools State Conference, Bloomfield Hills, MI, October, 1983.

- "Using Microcomputers in the Teaching of Probability and Statistics," A Conference on Microcomputers in Statistics, sponsored by the Delaware Chapter of the American Statistical Association, University of Delaware, April, 1984.
- "Using Microcomputers in the Teaching of Probability and Statistics" at a meeting of the Southwest Michigan Chapter of the American Statistical Association, Kalamazoo, MI, May 2, 1984.
- "Using Microcomputers in the Teaching of Probability and Statistics," Sixth Annual National Educational Computing Conference, Dayton, OH, June, 1984.
- At a conference honoring Bob Hogg I spoke on "Using Microcomputers in the Teaching of Probability and Statistics" in Iowa City, October 5, 1984.
- "M. C. Escher and Computers" for Provost's Lunch, Hope College, October 26, 1984.
- "M. C. Escher and Computers," The Albertus Magnus Science Symposium, Aquinas College, Grand Rapids, MI, November, 1984.
- "A Computer-Based Laboratory for Introductory Statistics," Annual Meeting of the Mathematical Association of America, Anaheim, CA, January, 1985.
- Spoke for Kiwanis Club on "Art on a Computer" on January 19, 1985.
- "Repeating Patterns, Escher on Apples," A.I.M.S./I.S.A.C.S. Conference in Detroit, November 8, 1985.
- "A Computer-Based Laboratory for Introductory Statistics," Second International Conference on Teaching Statistics, University of Victoria, Canada, August, 1986.
- "Mathematical Concepts in the Works of M.C. Escher," Meiji-Gakuin University, Yokohama Campus, May, 1987.
- "Computer Simulations to Motivate and/or Confirm Theoretical Concepts," Annual Meeting of the American Statistical Association, San Francisco, CA, August, 1987.
- "Computer Drawn Designs Using a Circular Coordinate System" for the Lampen Contest and Conference at Hope College, November 14, 1987.
- "M.C. Escher and Computers" for high school students and "Computer Simulations to Motivate and/or Confirm Theoretical Concepts" for the faculty at Central Michigan University in conjunction with Mathematics Awareness Week, April, 1989.
- "Tips for Creative Teachers," Holland Education Foundation lunch honoring creative teachers, June, 1989.
- "Statistics in Medical Quality Assurance" was presented at the Holland Community Hospital, February 6, 1990.
- "Interplay Between Simulation and Theory," Third International Conference on Teaching Statistics (ICOTS3), University of Otago, Dunedin, New Zealand, August, 1990.
- "The Computer As a Tool for Helping to Solve Problems in Probability and Statistics" at the MAA Annual Meeting, San Francisco, January, 1991.
- "Interplay Between Simulation and Theory" at the Michigan Section–MAA Upper Peninsula Regional Meeting, October, 1991. Also presented at a Calvin College Colloquium.
- "Geometric Properties of M.C. Escher's Repeating Patterns" and "Microcomputer Simulations" at the Fifth Annual Fall Conference, The Seaborg Center, Northern Michigan University, October 11, 1991.

- "Can a Microcomputer Outperform M.C. Escher," Meiji-Gakuin University, Yokohama Campus, June, 1992, 1993, 1994.
- "When Does the 'T Statistic' Have a t Distribution?" with Alexey Stepanov at the Annual Meeting of the Mathematical Association of America, San Antonio, January, 1993.
- Invited speaker for the Michigan Mathematics Prize Competition Awards program: "Random Number In $\cdots$ Answers Out," February, 1993.
- "Random Numbers In $\cdots$ Answers Out: MAPLE V Simulations" (with Bryan Goodman), at an Indiana Section, MAA meeting on October 15, 1993, and at Science Day, Hope College, 1993-94.
- "How to Win Big in Vegas – Statistical Simulations Using Maple V" with Brian Goodman, Mathematics Colloquium, February 3, 1994.
- "*Maple* and the Computer Provide Synergism for Learning Probability and Statistics" at the Fourth International Conference on Teaching Statistics, Marrakech, Morocco, 1994.
- "Symmetry: The Alhambra – M. C. Escher Connection" for a Mathematics Colloquium, September 22, 1994, and for Science Day, October 27, 1994.
- Presented a minicourse (with Zaven Karian) for the MAA at the Annual Meeting, January, 1995, in San Francisco entitled: "The Use of Symbolic Computation in Probability and Statistics."
- "Don't Know the Answer? – Simulate," Mathematics Department Colloquium, February 2, 1995.
- Gave an invited paper, "Maple and the Computer Provide Synergism for Learning Probability and Statistics," at the annual Michigan Section, MAA, meeting on May 5, 1995. Also presented at a Grand Valley State Universities Seminar in October, 1995.
- Presented a short course (with Zaven Karian), "Learning Probability and Statistics Through Explorations with Maple," at the annual ASA meeting in Orlando, FL, in August, 1995.
- Presented a minicourse for the MAA at the Annual Meeting, Orlando, FL, January, 1996, entitled: "The Use of Symbolic Computation in Probability and Statistics."
- "*Maple* and the Sample Mean from the Cauchy Distribution," with John Krueger at the Joint Mathematics Meetings, San Diego, January, 1997.
- Leader for a Roundtable Luncheon at the Annual Joint Statistics Meetings in Anaheim, August, 1997, on the topic "Using a Computer Algebra System for Instruction in Probability and Statistics."
- Presented "THE BIG GAME vs. LOTTO49 – Which is the Better Bet?" for Science Day at Hope College, Fall, 1997.
- "Use *Maple* to Simulate Observations of the First m Out of n Order Statistics," a talk given at the Joint Mathematics Meetings in Baltimore, January, 1998.
- "The Use of MAPLE V, Release 5, for Integration and 3-d Graphs to Illustrate the Central Limit Theorem," a colloquium talk at Hope College, February, 1998.
- "Symmetry: The Alhambra – M.C. Escher Connection" at Denison University in April, 1998.

- "Using MAPLE for Instruction in Undergraduate Probability and Statistics," a talk given at the Fifth International Conference on Teaching of Statistics: ICOTS-5, in Singapore, June, 1998.
- "MAPLE Integrated Into the Instruction of Probability and Statistics," a talk given at the 1998 Joint Statistical Meetings in Dallas, August, 1998.
- Animated figures from Chapter 5 of Hogg/Tanis, "Probability and Statistical Inference," have been developed using *MAPLE* and are available for viewing on my web page.
- "Using MAPLE To Find p.d.f.'s of Sums of Random Variables," at the Joint Mathematics Meetings, January 14, 1999, in San Antonio, Texas.
- Served as a Leader for a session on Upper Level Statistics Courses at a GLCA/ACM Mathematicians Meeting at Lake Forest College, April, 1999.
- "Circular Coordinates and Computer Drawn Designs," Hope College Colloquium, October 14, 1999, and Calvin College Colloquium, December, 1999.
- "Applications of MAPLE in the Instruction of Probability and Statistics," EPADEL (Eastern Pennsylvania/Delaware Chapter of MAA) Spring Meeting, April 8, 2000. Also presented at a Hope College Colloquium in April.
- "Creating Materials Using 'Real-world' Data," (with Janet Andersen and Todd Swanson), an MAA Minicourse, January 10 and 12, 2001, New Orleans.
- "Lotteries, Expected Values, and Public Opinion Polls," for HASP, February 27, 2001.
- "Using *Maple* for Visualization, Manipulation, and Simulation," The Michigan Section of the Mathematical Association of America, 77th Annual Meeting, Hope College, April 27, 2001.
- "Using *Maple* for Visualization, Manipulation, and Simulation: When Does T Have a t-Distribution?" Central Michigan University Mathematics Department Colloquium, November 6, 2001.
- "Public Opinion Polls and Lotteries," The Men's Club, Evergreen Commons, November 5, 2002.
- "Using MAPLE to Construct Tessellations Inspired by M. C. Escher," Hope College, November 21, 2002.
- "Public Opinion Polls and Lotteries – What Can You Believe?" The Century Club, April 7, 2003.
- "Using Maple to Construct Repeating Patterns and Tessellations Inspired by M.C. Escher," Hope College, October 23, 2003.
- A panel member at the Annual Mathematics Meetings in Phoenix on January 8, 2004, on the topic "What is Good About the Traditional 'Math Stat' Sequence? What is Wrong With It? What Should Be Included in the 'Math Stat' Sequence?"
- "Public Opinion Polls and Lotteries – What Can You Believe?" The Zeeland Literary Club, March 8, 2005.
- "Using Maple to Construct Repeating Patterns and Several Tessellations Inspired by M.C. Escher," Hope College, March, 2006.

17. Student projects under my direction that were presented by the students alone, with me, or written up.

- "How Large is Large Enough? A Study of the Ramifications of the Central Limit Theorem Through Simulation Techniques," by Deanna Gross (Snyder), May 1968.
- Deanna Gross (Snyder) presented "An Experimental Approach to the Central Limit Theorem" at the Annual Spring Meeting of the Michigan Section, MAA, and the Mathematics Section of the Michigan Academy of Science, Arts, and Letters on March 29, 1969.
- "The Central Limit Theorem and Mixed Distributions" by Deanna Gross Snyder, Patricia Lang (Young), and Elliot Tanis, May, 1969.
- "Application of Central Limit Theorem to Discrete Distributions and Existence of Means" by Elizabeth Mehnert, 1969, contains line printer output.
- "Random Number Generators and Statistical Distribution Theory" with Joyce Newell and Henry Diggelmann in 1970.
- Summer, 1971: The following students helped to develop software for the IBM 1130 to support new exercises in probability and statistics: Lynn Klaasen Hillegonds, Timothy Hillegonds, Richard Pohl, Glenn Weener.
- Summer, 1972: The following students were involved: Roger Crisman, Richard Meyers, Gail Ringsmith.
- Charmaine Mrazek worked on improving our pseudo random number generator which had a period of only 8192, during the summer, 1972.
- Joyce Newell worked on properties of the t distribution during the summer, 1972.
- Roger Crisman helped with the NSF Statistics Development Program during the summer of 1972.
- "Shortest Confidence Interval for the Standard Deviation of a Normal Distribution" was published by Roger Crisman in the *Journal of Undergraduate Mathematics*, 1975, pp. 57-62.
- Bruce Herman worked with me during the summer, 1976, on a project in statistics.
- Lee Kuivinen presented "Computer Art Using Parametric Equations" at Eastern Michigan University, May, 1977.
- 1977-78: James McElheny did a statistical analysis of measurements of grackels.
- Stephen Muyskens did an analysis of government spending as a political science project.
- Natalie Quiring statistically analyzed high temperatures and cases of pop sold by Brooks Bottling over a 2-year period.
- Demetra Hesselink statistically analyzed stability of vitamins in vitamin pills manufactured by De Pree Co.
- John Gibson presented "An Artistic Approach to Infinity Using the Tektronix 4051" at the University of Detroit, May, 1979.
- Carl Toren presented "Wallpaper Designs: A study of 2-D Crystal Structure" at the University of Detroit, May, 1979.
- Powell Quiring presented "Square Limit: An Approach to Infinity" at Hope College, May, 1980.

- James McElheny presented "Simulating Transformations in the Plane Symmetry Patterns Using the Tektronix 4051" at the Michigan Section Meeting, MAA, May 3, 1980, and at the summer Pi Mu Epsilon meeting in Ann Arbor, August 18-20, 1980.
- Bill Terkeurst spoke on "Relativity in Perspectivity" at the Michigan Section Meeting, MAA, May 3, 1980, and at the summer Pi Mu Epsilon meeting in Ann Arbor, August 18-20, 1980.
- Powell Quiring spoke on "Periodic Border Designs Classified and Illustrated on the Tektronix 4051" at the Michigan Section Meeting, MAA, May 3, 1980.
- James McElheny spoke on "Simulating Transformations in the Plane Symmetry Patterns Using the Tektronix 4051" at the Michigan Section Meeting, MAA, May 3, 1980.
- "Relativity in Perspectivity" was published by William Terkeurst in the *Pi Mu Epsilon Journal*, spring, 1982, pp. 365-373.
- Beth Dokter, Ann Robbins, Matthew Gaffney, and Keith Mulder presented "Artistic Apple Graphics" at the Michigan Section of the MAA at Calvin College, May 8, 1982.
- Matt Oudsema and Matt Ten Huisen: "Model Fitting and Goodness of Fit Testing, Scatter Plots – Using IBM PCs for Statistics" and "Tiling the Plane."
- Tom Ten Hoeve III presented "Exploratory Data Analysis Using Microcomputers" at the Michigan Section MAA meeting on May 6, 1983 and at the Pi Mu Epsilon national meeting in Albany, NY in August, 1983.
- "Data Analysis and Statistical Inference for Data Taken on Pregnant Women – Observations, Calculations, and Conclusions" by Joyce Chandler, 1984.
- *A Package to Demonstrate and Construct Tessellations on IBM (Compatible) Computers* by Elliot A. Tanis and Scott D. Schell was published in house under a Cooperative Faculty/Student Research Summer grant, 1989.
- Jeff Van Eeuwen presented a paper at the annual Pi Mu Epsilon meeting in Boulder, 1989.
- "Can an IBM Computer Out Perform M. C. Escher?" by Elliot A. Tanis and Scott D. Schell for Hope College Science Day, October 26, 1989.
- Joshua Levy presented a statistics paper in Minneapolis in August, 1994.

18. Art Exhibits of Computer Drawings:

    - On Hope College's Campus, May, 1980.
    - At the Summer Meeting of the Mathematical Association of America on the University of Michigan campus, August, 1980.
    - At the Annual Meeting of the Michigan Section of the Mathematical Association of America, Michigan State University, May, 1987.

19. Wrote several test units for ACT for the Preliminary Actuarial Exam

    - 16 questions, September, 1977.
    - 25 questions, December, 1983.
    - 10 questions, January, 1984.
    - 16 questions, November, 1984.

- 15 questions, November, 1985.
- 16 questions, November, 1986.
- 20 questions, February, 1988.
- 12 questions, October, 1988.
- 12 questions, June, 1989.

20. Other information on professional and academic activities not described above (editor, lectures, special assignments, short courses, book reviews, etc.):

    - Attended a NATO Advanced Study Institute on Computer-Based Science Instruction, Universite de Louvain, Belgium, July, 1976.
    - Research at The Escher Foundation in the Gemeentemuseum, The Hague, Netherlands, 1979.
    - GLCA campus representative for China programs, 1985-86.

21. Nature of your principal efforts toward career development over the past year (attendance at special courses, research efforts, publications, new teaching methodology, etc.):

    - With Robert V. Hogg, we completed the eighth edition of *Probability and Statistical Inference*.
    - I prepared *Probability and Statistics: Explorations with MAPLE* as a PDF file available for download from Pearson Prentice-Hall.
    - I coordinate HASP (Hope Academy of Senior Professionals) volunteers for Hope College classes.