

**RICHARD ALAN GILLMAN**  
Professor of Mathematics, Valparaiso University

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**EDUCATION**

D.A. Mathematics, Idaho State University, 1986

    Thesis Title: Graph Homomorphisms

    Advisor: Dr. Robert Girse

M.A. Mathematics Education, Ball State University, 1981

    Thesis Title: Motivating Mathematically Gifted Students

B.S. Mathematics Education, Ball State University, 1979

    Honors Paper: A Study of Multicultural Education

**EMPLOYMENT EXPERIENCE**

**Valparaiso University**, Valparaiso, IN, 46383

    Chair, Department of Mathematics & Computer Science (2003 - )

    Assistant Dean for Research and Teaching Support, College of Arts and Sciences (1999 - 2003),

    Director of the Lumina Center for Program Development in the College of Arts and Sciences (1995 - 2003),

    Professor (2003 - ), Associate Professor (1992 - 2003), Assistant Professor (1986 - 1992).

**Purdue University - North Central**, Westville, IN, 46391

    Part-time Instructor (1989 - 1992).

**Idaho State University**, Pocatello, ID, 83209

    Instructor (1985-1986), Doctoral Fellow (1982 - 1985).

**Ball State University**, Muncie, IN, 47306

    Instructor (1981 - 1982), Teaching Assistant (1979 - 1981).

**PROFESSIONAL MEMBERSHIPS**

National Council of Teachers of Mathematics (since 1979)

Mathematical Association of America (since 1982)

American Mathematical Society (occasionally since 1984)

Council for Undergraduate Research (since 1994)

**REFERENCES:** Available upon request.

## **AWARDS**

Indiana Section of the MAA Outstanding Service Award (2001).

## **SELECTED CAMPUS ACTIVITIES**

- Co-chair, VU North Central Accreditation Team (2004 - ).
- Member, VU Campus Planning & Space Allocation Committee (2006 - ).
- Member, Gellersen Center Task Force (2004 - ).
- Member, VU Honor Council (1994 - ).
- Member and secretary, VU General Education Revision Committee (2002 - 2005).
- Member, VU General Education Standing Committee (2005 - 2006 ).
- Director, VU's Celebration of Undergraduate Scholarship (1998 - 2004).
- Member, Neils Science Center Task Force (2002 – 2003).
- Member, VU Safety and Health Committee (2001 – 2003).
- Member, VU College of Adult Scholars Steering Committee (2000 – 2003).
- Member, Scholarship and Advising Committee, VU College of Arts & Sciences (1987-1993).

## **SELECTED PROFESSIONAL ACTIVITIES**

- Member and Chair, MAA *Problem Book Series* Editorial Board (2005 - ).
- Consultant for Project Next (2001) and Project Next-IN (1999, 2000, 2002).
- MAA section Secretary-Treasurer (1995 - 2000)
- MAA section Chair (2002 - 2003)
- MAA section Governor (2005 - ).
- Member of the MAA National Membership Committee (1999 - 2005).
- Member of CUPM Subcommittee on Quantitative Literacy Requirements (1993 - 2004).
- Councilor for the Mathematics Division of CUR (1998 - 2001).
- External departmental review visitor (7 occasions).

## **SELECTED COMMUNITY ACTIVITIES**

- Member & former president, Duneland Education Foundation (1996 - ).
- Boy Scouts of America local leader (1996 – 2006)

## COURSES TAUGHT

BASIC Programming	Quantitative Problem Solving	Pre-Calculus
Finite Mathematics	Business Calculus	Calculus I, II, and III
Discrete Math I and II	Graphs and Networks	Optimization
Analysis I and II		
Mathematical Ideas (as Logic/Philosophy, Intuitive Calculus, and Game Theory)		
Transition to Advanced Mathematics (as Topology)		
Freshman Seminar (writing)	Sociology (graduate seminar in game theory)	

## BOOKS

"A Friendly Competition: 35 Years of Teamwork in Indiana", Mathematical Association of America, 2003.

"Current Practices in Quantitative Literacy", Mathematical Association of America, 2006.

"Models of Conflict and Cooperation", in preparation.

## REFEREED PUBLICATIONS

"A Digraph Equation for Homomorphic Images", with R. Girse, Inter J Math & Math Sci, Vol. 9 #2 (1986), 409-411.

"Homomorphisms and Related Contractions of Graphs", with R. Girse, Inter J Math & Math Sci, Vol. 11 #1 (1988), 95-100.

"Some New Functions on the Mosaic of  $n$ ", Journal of Natural Sciences and Mathematics, Vol. 30 #1 (1990), 47-56.

"The Average Size of a Certain Arithmetic Function", Advanced Problem #6660, American Mathematical Monthly, Vol. 98 #5 (1991), 446.

"A Colloquium Experience for Undergraduate Mathematics Majors", Primus, Vol. 1 #4 (1991), 423-429.

"K-distributive Functions on the Mosaic of  $n$ ", Journal of Natural Sciences and Mathematics, Vol. 32 #1 (1992), 25-30.

"Negami's Polynomial as a Contraction Polynomial", Graph Theory, Combinatorics, and Applications, Alavi and Schwenk (eds), John Wiley and Sons, New York, (1995).

"Homomorphism and Sigma Polynomials", Inter J Math & Math Sci, Vol. 18 #4 (1995) 653-658.

"Insights from a Semester of Collaborative Teaching", with J. Lehmann, PRIMUS, Vol. 8 #2 (June, 1998) 97-102.

"A Team Approach to Institutional Proposals", CUR Quarterly, (June, 1999).

"An Analysis of Bending Wood via Kerf Cuts", with D. Barkow\*, C. Hoffmann\*, & J. Wingstrom\*, Mathematics Teacher, Vol. 94, #8 (Nov 2001) 636-638.

- "Mathematics and Cultural Diversity in the Curriculum", Humanistic Mathematics Network Journal, Issue #25, (August, 2001).
- "Enumerating Essentially Distinct Lattice Paths", Geombinatorics, Vol. 11, #2 (2001) 37-42.
- "Geometry and Gerrymandering", Math Horizons, Vol. 10, #1 (Sep, 2002) 10-13.
- "Engaging First Year Students in Mathematical Research", with J Caristi, CUR Quarterly, Vol 23, #2, (Dec 2002) 95-98.
- "On the Edge Set of Graphs of Lattice Paths", with S. Klee\* and L. Pudwell\*, Inter J Math & Math Sci, Vol 2004, #61, (Nov 2004), 3291-3299.
- "Valparaiso Experience in Research for Undergraduates in Mathematics", with Z. Szanislo, Proceedings of the Conference on Promoting Undergraduate Research in Mathematics, American Mathematical Society, (2007), 179-182.
- "Academic Year Research at Valparaiso University", with Z. Szanislo, Proceedings of the Conference on Promoting Undergraduate Research in Mathematics, American Mathematical Society, (2007), 279-283.
- "Maximizing Interactions at Social Functions", submitted to UMAP Journal, 2007.
- "Voting Power, Top to Bottom", with A. Cuttler\*, A. DeGuire\*, and S. Rowell\*, in preparation.
- "More Functions on the Mosaic of  $n$ ", with K. Bildhauser\*, J. Erickson\*, and C. Tacoma\*, in preparation.

\* indicates undergraduate co-author.

### **INVITED PRESENTATIONS**

- "Homomorphic Images and Contractive Images of Graphs", Purdue North Central Colloquium, Westville, IN, (1990).
- "The Mathematics of Marriage", Michiana Mathematics Teacher Association, South Bend, IN, (1992).
- "MENI: Mathematical Experiences in Northwest Indiana", SUMMA grant writing workshop, Burlington, VT, (1995).
- "The Poetry of Mathematics: An Aesthetic Asset to Education", J. James Lecture Series, Butler University, Indianapolis IN (1995).
- "Intervention Projects for Minority Pre-college Students", panel discussion MAA national meeting, San Diego CA (1997).
- "Counting Telephone Numbers (and other things, too!)", Gary Westside High School, Gary, IN (1997).
- "Calculus for Liberal Arts Students", AMS Special Session, Chicago IL, (1998).
- "The Geometry of Gerrymandering", Ball State University mathematics colloquium, Muncie, IN (2000).

"Maintaining an Active Research Program", Indiana Section of MAA's NEXT-IN conference, Evansville, IN (2000).

"Implementing Curriculum Change", panel member at MAA national meeting, New Orleans, LA (2001).

"Essentially Equivalent Lattice Paths and their Graphs", Goshen College science faculty colloquium, Goshen IN (2002).

"Essentially Equivalent Lattice Paths and their Graphs", Butler University Pi Mu Epsilon Lecture, Indianapolis IN (2003).

"Three Minute Dating and Other Social Mixers", Saint Marys College, Notre Dame IN (2004).

"Defining and Implementing Quantitative Literacy Programs", NECQL Annual Meeting, Hamilton College, NY (2005).

### **CONTRIBUTED PRESENTATIONS**

"Homomorphisms of Graphs and Their Related Contractions", MAA section meeting, Ogden, UT, (1985).

"Homomorphisms of Digraphs", AMS national meeting, New Orleans, LA, (1986), MAA section meeting, Grand Junction, CO, (1986).

"Graph Homomorphisms and Homomorphism Polynomials", MAA Graph Theory Seminar, Duluth, MN, (1987).

"Writing Projects for Mathematics Service Courses", MAA section meeting, Angola, IN, (1987).

"Speaking Well as well as Writing Well", MAA national meeting, Phoenix, AZ, (1989).

"What do I do with a BS in mathematics?", NCTM regional meeting, Grand Rapids, MI, (1989).

"Reading and Writing in a Mathematical Ideas Course", MAA national meeting, Columbus, OH, (1990).

"The Mosaic of an Integer", MAA section meeting, Fort Wayne, IN (1991).

"Negami's Polynomial as a contraction polynomial", Seventh International Graph Theory Conference, Kalamazoo, MI, (1992).

"A Truly Liberal Arts Mathematics Course", conference on Interdisciplinary Instruction, Albany, NY, (1992).

"Murder Mysteries and Friendly Competitions", MAA national meeting, Cincinnati, OH, (1994).

"Calculus for Liberal Arts Students", MAA national meeting, Burlington, VT, (1995), MAA national meeting, Atlanta GA, (1997).

"The Poetry of Mathematics: An Aesthetic Asset to Education", NCTM national meeting, San Diego (1996).

"The Geometry of Gerrymandering", MAA section meeting, West Lafayette, IN (2001).

"Defining Quantitative Literacy", MAA section meeting, Evansville, IN (2004).

## FUNDED GRANT PROPOSALS

- SUMMA (1993). Author of a planning grant for outreach activities for under-represented minorities in the mathematical sciences. \$3,000.
- NSF #9353853 (1993). Co-author (with M. Treanor) of a grant establishing the Northwest Indiana Young Scholars Program for high school students in the region. \$193,000.
- EISENHOWER (1993, renewed in 1994 and 1995). Co-author (with M. Treanor) of a grant to run a workshop on Collaborative Learning for high school mathematics teachers in the region. \$250,000 combined.
- NIPSCO (1994). Author of grant to support the activities of the MENI Office in the Department of Mathematics and Computer Science. \$3,000.
- LILLY ENDOWMENT (1995). Co-author (with M. Bradley, E. Luecke, and G. Cook) of a grant establishing the Project for Science, Mathematics and Engineering. \$1,200,000.
- SENSOR FOUNDATION (1996, renewed in 1997). Ghost writer (for M. Treanor) of grant to pilot a mathematics minicamp for women. \$10,000 combined.
- WHIRLPOOL FOUNDATION (1996). Author of a grant to pilot a mathematician in residence program supported by the Department of Mathematics and Computer Science. \$2,500.
- AID ASSOCIATION FOR LUTHERANS (1996). Author of a grant to fund outreach activities sponsored by the Center for the Arts at Valparaiso University. \$8,000.
- LILLY ENDOWMENT (1997). Co-author (with K. Mullen and L. Mainstone) of a grant to implement changes in the faculty development program at Valparaiso University. \$200,000.
- VALPARAISO UNIVERSITY GUILD (1997). Co-author (with T. Comar) of a grant to purchase three TI-83 viewscreens for the Department to use in classroom demonstrations. \$1,500.
- VALPARAISO UNIVERSITY DENTZLER TRUST GRANT (1998). Author of a grant to establish a service learning course in mathematics on the history of the calculus. \$1,500.
- PORTER MEMORIAL HOSPITAL (1998). Author of a pass-through grant to support health education and health-related science education projects in the Duneland School Corporation. \$2,000.
- VALPARAISO UNIVERSITY SUMMER RESEARCH FELLOWSHIP (1998). Author of a grant to fund my summer research on  $k$ -distinct lattice paths. \$2,000.
- HOUSING & URBAN DEVELOPMENT (1999). Co-author (with B. Mercer-Taylor and L. Baas) of a grant to establish a Community Outreach Partnership Center in the Department of Political Science. \$400,000.
- VU ALUMNI ASSOCIATION FACULTY DEVELOPMENT AWARD (2000). Author of a grant to fund my travel to the Ninth Quadrennial Graph Theory Conference. \$500.
- VALPARAISO UNIVERSITY SUMMER RESEARCH FELLOWSHIP (2001). Author of a grant to fund my work editing a history of the ICMC. \$1,000.
- VALPARAISO UNIVERSITY UNDERGRADUATE RESEARCH GRANT (2002). Author of a grant to purchase a copy of Maple 8 to support undergraduate research. \$1,000.

VALPARAISO UNIVERSITY VOCATIONS MINI-GRANT (2002). Author of a grant to revise Math 399 to include a vocations component. \$1,500.

NSF #033870 (2004). Co-author (with Z. Szaniszlo) of a grant to fund a VU based REU program for three years. \$174,570.

VALPARAISO UNIVERSITY UNDERGRADUATE RESEARCH GRANT (2004). Author of a grant to purchase network licenses for Scientific Workplace to support undergraduate research. \$1,000.

VALPARAISO UNIVERSITY EXPENSE GRANT (2003). Author of a grant to attend a workshop on preparing to be a department chair person (\$1,000.)

VALPARAISO UNIVERSITY EXPENSE GRANT (2005). Author of a grant to purchase books and attend game theory workshops (\$1,300.)

VALPARAISO UNIVERSITY SUMMER RESEARCH FELLOWSHIP (2006). Author of a grant to fund my work on a game theory book for quantitative literacy (\$1,500).

VALPARAISO UNIVERSITY SUMMER RESEARCH FELLOWSHIP (2007) Author of a grant to travel to Hungary to investigate the possibility of an international mathematics REU program (\$2,500).

NSF (pending 2007), Co-author (with Z. Szaniszlo) of a grant to establish an international REU program at Valparaiso University, in partnership with Debrecen University (\$509,000).

### **MATHEMATICAL SESSIONS ORGANIZED**

*Quantitative Literacy Courses*, Joint Math Meetings, (1999).

*Quantitative Literacy: What is it and what works?* Joint Math Meetings, (2003).

*Quantitative Literacy Across the Curriculum*, Joint Math Meetings, (2004).

*Quantitative Literacy, Liberal Arts, and Calculus*, Joint Math Meetings (2007).

*Implementing A Departmental Self-Study*, JMM Minicourse (2008).

**NON-MATHEMATICS CONFERENCES, COURSES AND WORKSHOPS**

Conference on Interdisciplinary Instruction, Albany, 1992.

Course 105: Proposal Writing: The Psychology and the Process, IU School of Philanthropy, 1996.

Lilly Conference on College Teaching, Oxford (OH), 1997, 1998, and 2000.

CUR Workshop on Institutionalizing Undergraduate Research, San Diego, 1997.

National Conference on Quantitative Literacy, Washington, 2001.

Course 103: Planned Giving: Getting the Proper Start, IU School of Philanthropy, 2001

AAC&U Conference, Indianapolis, 2003.

PKAL workshop on Biochemistry, Williamsburg, 2003.

MAA PREP Workshop on Chairing a Mathematics Department, Washington, 2003.

AAC&U Conference on Assessing General Education, Long Beach, 2004.

Higher Learning Commission Annual Conference, Chicago, 2005.

Chautauqua course on Experimental Economics, Harvard, 2005.

PKAL Leadership Workshop, Madison, 2005.

ANAC Summer Institute, Elon University, 2007.