

Maria Zack

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EDUCATION

University of California, San Diego, San Diego, CA

Ph.D. in Mathematics

1989

Dissertation: "Convergence to Uniform on the Finite Heisenberg Group and Applications to Random Number Generators"

University of California at San Diego, San Diego, CA

B.A. in Mathematics

1984

GRANTS AND AWARDS

- Grant to participate in SAUM (Supporting Assessment in Undergraduate Mathematics) sponsored by the NSF/MAA **2003-2004**
- Wesleyan Center Research Grant **2006-2007**

TEACHING EXPERIENCE

Point Loma Nazarene University, San Diego, CA

Professor and Chair – MICS

2002-Present

Point Loma Nazarene University, San Diego, CA

Professor – Mathematics

2000-2002

Point Loma Nazarene University, San Diego, CA

Associate Professor – Mathematics

1996-2000

Point Loma Nazarene University, San Diego, CA

Assistant Professor – Mathematics

1994-1996

Texas Tech University, Lubbock, TX

Assistant Professor – Mathematics

1989-1990

RELATED EXPERIENCE

Institute for Defense Analysis Center for Communications Research, La Jolla, CA

Consultant

1995-2007

Institute for Defense Analysis Center for Communications Research, La Jolla, CA

Research Staff Member

1991-1995

PAPERS OR TALKS

- G. Crow and M. Zack, May 2007, "Vocation," Conference of the ACMS at Messiah College, Grantham, PA.
- M. Zack, June 2006, "Are There Connections Between the Mathematical Thought and Architecture of Sir Christopher Wren?," Nexus 2006: Relationships Between Architecture and Mathematics, Genoa, Italy.
- M. Zack, June 2005, "Integrating the Teaching the History of Mathematics Using Architecture and Art," Conference of the ACMS at Huntington University, Huntington, IN.
- J. Jimenez and M. Zack, January 2004, "Assessment of Student Learning in Undergraduate Mathematics: Work In Progress," Joint Mathematics Meetings, Phoenix, AZ.
- M. Zack, May 2003, "Staying Alive in a Teaching University," Conference of the ACMS at PLNU, San Diego, CA.
- M. Zack, August 2002, "Mathematics and Architecture," The Conference Honoring Audrey Terras, San Diego, CA.
- M. Zack, January 2002, "Using Architecture to Teach the History of Mathematics," Joint Mathematics Meeting, San Diego, CA.
- M. Zack, May 2001, "Mathematics Study Abroad Trips," Conference of the ACMS at Calvin College, Grand Rapids, MI.
- M. Zack, May 1999, A Review of 'the Man Who Loved Only Numbers', Conference of the ACMS at Gordon College, Waltham, MA.
- M. Zack, November 1998, "An Introduction to Cryptography," Sonia Kovalesky Mathematics Day, San Diego, CA.
- M. Zack, November 1996, "Excel, Labs and Projects in an Introductory Statistics Course," Ninth Annual Conference on Technology in Collegiate Mathematics, Reno, NV.
- M. Zack, January 1994, "Convergence to Uniform on the Finite Heisenberg Group," American Mathematical Society Meeting, Cincinnati, OH.
- M. Zack, January 1990, "Representations of the Affine Group and Random Number Generators," 4th Annual Workshop on Automorphic Forms and Related Topics, Hanover, NH.
- M. Zack, July 1989, "Measuring Randomness and Evaluating Random Number Generators Using the Finite Heisenberg Group," Janos Bolyai Mathematics Society's 3rd Annual Colloquium on Limit Theorems, Pecs, Hungary.
- M. Zack, March 1989, "Random Number Generators," NSF-CBMS Regional Conference on Discrete Groups, Expanding Graphs and Invariant Measures, Norman, OK.
- M. Zack, January 1989, "Convergence to Uniform on the Finite Heisenberg Group," American Mathematical Society Meeting, Phoenix, AZ.

PUBLICATIONS

M. Zack, 2006, "Are There Connections Between the Mathematical Thought and Architecture of Sir Christopher Wren?," *Nexus VI: Architecture and Mathematics*, p171-180, Turin, Kim Williams Books.

J. Jimenez and M. Zack, 2006, "Keeping Assessment Simple," Supporting Assessment In Undergraduate Mathematics, p 163-170, Washington, DC, Mathematical Association of America.

J. Jimenez and M. Zack, 2006, "General Education Mathematics: A Problem Solving Approach," Current Practices in Quantitative Literacy, p 119-123, Washington, DC, Mathematical Association of America.

M. Zack, 2006, "Teaching the History of Mathematics Using Architecture and Art," The Journal of the Association of Christians in the Mathematical Sciences, <http://www.acmsonline.org/journal2006.htm>, Wheaton, Association of Christians in the Mathematical Sciences.

G. Crow and M. Zack, Editors, 2003, Proceedings of the Fourteenth Conference of the Association of Christians in the Mathematical Sciences, Wheaton, Association of Christians in the Mathematical Sciences.

M. Zack, 2002, "How I came to Love the History of Math," Bulletin of the Canadian Society for the History and Philosophy of Mathematics, p. 13, Toronto, Canadian Society for the History and Philosophy of Mathematics.

M. Zack, 2001, "Mathematics Study Abroad Trips," Proceeding of the Thirteenth ACMS Conference on Mathematics from a Christian Perspective, p. 91-96, Wheaton, Association of Christians in the Mathematical Sciences.

M. Zack, 1999, "A Review of 'The Man Who Loved Only Numbers,'" Proceedings of the Meeting of the Association of Christians in the Mathematical Sciences, Wheaton, Association of Christians in the Mathematical Sciences.

M. Zack, 1989, "Measuring Randomness and Evaluation Random Number Generators Using the Finite Heisenberg Group," *Colloquia Mathematica Societatis Janos Bolyai*, North Holland Publishing.

My consulting work for the Institute for Defense Analyses Center for Communications Research has been one of my key research outlets. The work I do for IDA is classified so I cannot describe it or list publications. I have stayed committed to this particular research outlet because it offers me significant computing resources (super computers) as well as an opportunity to put my research results to use immediately on concrete projects.

CONSULTING

- Consultant, Institute for Defense Analyses Center for Communications Research (1995-2007)
- Reviewed the California Mathematics Framework (1997)

MEMBERSHIPS

- American Mathematical Society
- Mathematical Association of America
- Association of Christians in Mathematical Sciences
- Association of Women in Mathematics

CONFERENCES ORGANIZED

- Nexus VII: International Conference on Mathematics and Architecture, San Diego, CA, June 2008.
- Consortium for Computing Sciences in Colleges, Inaugural Southwestern Regional Conference, Los Angeles, CA, April 2008.
- Second Annual Undergraduate Computer Science and Information Sciences Conference, San Diego, CA, April 2006.
- Undergraduate Computer Science and Information Sciences Conference, San Diego, CA, April 2005.
- Association of Christians in the Mathematical Sciences, San Diego, CA, May 2003.
- Institute for Defense Analyses, La Jolla, CA, August 2002.
- Conference Honoring Audrey Terras, La Jolla, CA, August 2002.
- Medical Benevolence Foundation Conference on Medical Missions, Solana Beach, CA, April 2001.

UNDERGRADUATE RESEARCH PROJECTS SUPERVISED

- Brandon Edgebert, "Predicting the Educational Needs of Pastors for the Center for Pastoral Leadership", PLNU, 2006-07.
- Tyler Gray, "Quantitative Analysis of Alumni Survey Data", PLNU, 2006-07.
- Heather Lausch, "Merging Faith and Mathematics: Quantitative Analysis in Aid of PLNU Institutional Research", PLNU, 2006-07.
- Amy Swen, "Analysis of Survey Data on Student Spiritual Disciplines", PLNU, 2006-07.
- Rebecca Price, "Some Applications of Number Theory to Games and Puzzles", PLNU, 2005-06.
- Christine Todd, "The Four Color Theorem", PLNU, 2004-05.
- Sarah Richardson, "Data Mining Using Weka", PLNU, 2004-05.
- Jedidiah Butler, "The Calculus of Newton", PLNU, 2004-05.
- Sarah Littler, "A Mathematical Perspective on Art", PLNU, 2003-04.
- Catherine Pfeiffer, "How Do Graphs Sound?", PLNU, 2001-02.
- Keith Hubbard, "An Investigation of Random Number Generation", PLNU, 1999-2000.

PLNU COMMUNITY SERVICE

University at Large:

- WASC CPR and EER (2004-2007)
 - Chaired CPR Data Committee and wrote report
 - Wrote CPR Strategic Planning report
 - Built and maintained University Data Tables
 - Webmaster for entire WASC report website
- Co-Chair of the Strategic Planning Committee (2006- present)
- Chair of the task force that redesigned the faculty salary algorithm (1999)
- Annually compute the faculty salary target for the Vice President for Finance and Administration (1999 – present)
- I have also served on several university committees including: Faculty Status Committee, Faculty Council, Spiritual Development Committee, Teacher Education Committee, Media Board, ISPS

Advisory Board, and Faculty Workshop and Retreat Committee.

- Regular speaker at the New Faculty Orientation and New Faculty Seminar.
- Helped with organizational tasks (presiding over sessions, etc) for most of the Wesley Center Conferences.
- Served on student honors thesis committees outside of my department.
- Have spoken in a number of PLNU events including: Heritage Day chapel, Psychology 101 convocation and Faculty Workshop.
- Coordinator and co-leader for a Theology/Biology study abroad trip to Kenya (1998)

Within the MICS Department:

- Wrote both Department Reviews
- Wrote the Mathematics Single Subject Program certification documents for the State of California and created the template used by other PLNU departments for their single subject documents.
- Organized annual trips to take students to the Mathematical Association of America Southern California Section meeting. Students presented posters of their research at these meetings.
- Designed our departments study abroad experience. Lead trips in 2000, 2002, 2004, 2006 and am planning one for 2008.

COMMUNITY INVOLVEMENT

Ordained Elder in the Presbyterian Church (ordained 1996)

Medical Benevolence Foundation:

- Trustee of the Medical Benevolence Foundation (1997 – present)
- Treasurer of the Medical Benevolence Foundation (1999-2002)
- Vice President of the Medical Benevolence Foundation (2005-2006)
- President of the Medical Benevolence Foundation (2007-present)
- Coordinator for the construction of a maternity ward at Tumutumu Hospital in Karatina, Kenya (1998-2003)

Short Term Missions Consulting:

- Short Term Missions Team trainer for Floresta International and Mt. Soledad Presbyterian Church (1998 – 2000)
- Training Manual Reviewer for Christ for the City International (1998)
- "Discover the World," teacher (taught two 6-week courses) (1996, 1997)
- Master's Thesis mentor for Shelley Ulrich, "Developing Leadership Through Short Term Missions," Azusa Pacific University, 2003.

Local Congregation:

- Missions Financial Secretary (2000-2006)
- Executive Pastor Search Committee Solana Beach Presbyterian Church (1998-1999)
- Budget Committee, Solana Beach Presbyterian Church (1996-1999)
- Missions Elder, Solana Beach Presbyterian Church (1996 – 1999)
- Senior Pastor Search Committee Solana Beach Presbyterian Church (1995-1996)
- Missions Committee and Missions Budget Committee, Solana Beach Presbyterian Church (1994-2006)
- Short Term Missions Coordinator, Solana Beach Presbyterian Church (1993 – 2005)