

Lisa Townsley

Lecturer

University of Georgia Mathematics

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FIELDS OF INTEREST

Technology in mathematics education, particularly online homework delivery systems and mass assessment; also algebra, particularly group cohomology

EDUCATION

Santa Clara University, Santa Clara, CA.; B.S. 1981

Northwestern University, Evanston, IL; M.S. 1983; Ph.D. 1988

PROFESSIONAL EXPERIENCE

8/22-present Lecturer, University of Georgia Mathematics
9/13-7/15 Senior Academic Professional, University of Georgia Mathematics
9/08-8/13 Academic Professional, UGA Mathematics
9/97-8/08 Professor, Benedictine University Mathematics
9/91-8/97 Associate Professor, Benedictine University
(formerly Illinois Benedictine College)
9/87-8/91 Assistant Professor, Illinois Benedictine College
9/86-8/87 Instructor, full-time, Hamline University
9/85-6/86 Instructor, part-time, University of Minnesota
6/84-6/85 Adjunct Instructor, Northwestern University College
9/84-12/84 Adjunct Instructor, Elmhurst College

ADMINISTRATIVE EXPERIENCE

Math 1113E (Precalculus Emporium) Assessment Coordinator, 2014-2015 (University System of Georgia)

Math 1113 (Precalculus) Course Coordinator, 2008-2015 (University of Georgia)

Math 2200 (Calculus) Course Coordinator, 2010-2015 (University of Georgia)

Faculty Assembly Chairperson, 2006-2008 (Benedictine University)

Honors Committee Chairperson, 2000-2007 (Benedictine University)

AAUP-Illinois Conference Board member and Treasurer, 2003-2008

ISMAA Board member 2004-2007 (Illinois)

Faculty Welfare Committee (over 10 years experience, responsible for drafting many contractual changes) (Benedictine University)

Associate chairperson for mathematics within joint Mathematics/CS Department, 1994-1998 (Benedictine University).

TEACHING AWARD

2013 UGA Sandy Beaver Excellence in Teaching

EXTERNAL REFERENCES

Professor Jeremy Nadolski, Benedictine University Department of Mathematics and Computer Science

Professor Steven Schlicker, Grand Valley State University Department of Mathematics

Instructional Professor Jennifer Whitfield, Texas A&M University Department of Mathematics

PROFESSIONAL ORGANIZATIONS

American Mathematical Society, Sigma Xi, Association for Women in Mathematics, American Association of University Professors, Phi Beta Kappa

CONFERENCE LEADERSHIP

Conference co-chair, Tenth International Conference on Technology in Collegiate Mathematics, November 6-9, 1997. Approximately 1500 attendees. Benedictine University was a co-host institution. ICTCM conference underwritten by Addison-Wesley.

Conference chairperson, ISMAA (Illinois State MAA annual meeting), April 7-8, 2006. Conference hosted at North Central College. Record attendance exceeding 250 attendees, including record student attendance.

GRANTS

UGA CTL Learning Technologies Grant for hardware, software, and student workers to provide video solutions to UGA-coded problems in WebAssign, co-PI with Natalia Alexeev, \$11750, May 2023.

UGA CTL grant for hardware and software to provide video solutions to UGA-coded problems in WebAssign, \$2755.66, January 2012.

Title III summer stipend and release time at Benedictine University to generate new department-wide calculus laboratory experiments using DERIVE, WebCT, and other technological tools, June 2004-May 2005.

HHMI Directed student research at Benedictine University, \$12,000, "Space Group Investigations with MAGMA", June-July 2003.

NSF MRI Grant 0116202, \$70,953 for computing support, CO-PI with Mark Carlson (CO-PI, physics) and PI Ralph Meeker (computer science), August, 2001.

Benedictine University Summer Research Support, \$1998, June 2000; \$2168, June 2001.

NSF Instrumentation Grant for a dedicated Mathematics Laboratory, \$35,617, DUE 9351472, March 1993

OTHER EXPERIENCES

Journal Referee, PRIMUS journal, 2022-present.

Supervisor of first-time University of Georgia mathematics graduate student instructors: including classroom observation and seminar lectures on how to teach particular mathematics content and manage a collegiate class, 2009-2015.

AMS/MAA Committee on Teaching Assistants and Part-Time Instructors, 2013-2015.

WebAssign Mathematics Advisory Board and then Faculty Advisory Board, giving mathematics advice to WebAssign on collegiate needs, particularly for assessment, July 2010-July 2015 (unpaid).

CLEP Committee member, writing and updates of new Precalculus Exam for college credit, Fall 2003-July 2015, the test is active since January, 2006 (Chairperson, July 2014-July 2015).

AMS Short Course Subcommittee member: solicit and select short courses in applied mathematics for Joint MAA/AMS meetings each January, 2007-2010.

Program Committee, International Conference on Technology in Collegiate Mathematics, Strand Chairperson for 1998, 1999, and 2000 conferences.

Program Committee, The Fourth International Derive-TI92(89) Conference, Liverpool, UK, 2000.

Journal referee, The Pentagon and The International Journal of Computer Algebra in Mathematics Education, 1993-2009.

Reader and Table Leader/Question Leader, AP Calculus Exams, June 1991-2001, 2004, 2005.

Consultant to College Board, author of textbook, video, and webpage reviews; AP Central website, 2001-2008; and reviewer/editor for teacher training materials, 2002-2008.

Editorial board member, www.mathdemos.org, 2004-2008.

PUBLICATIONS

“Using a MOOC Format for a Precalculus Course”, PRIMUS Vol. 26 (2016), Issue 6: Special Issue on Teaching with Technology, 618-630.

“MOOC Precalculus (almost) at the University System of Georgia”, Proceedings of the Twenty-sixth International Conference on Technology in College Mathematics, Pearson Education Inc, 2014.

“First Cohomology for Finite Groups of Lie Type: Simple Modules with Small Dominant Weights”, UGA VIGRE Algebra Group, Transactions of the AMS 365 (2013), no. 2, 1025-1050.

“Second Cohomology for Finite Groups of Lie Type”, UGA VIGRE (Vertical Integration of Research and Education in the Mathematical Sciences) Algebra Group, Journal of Algebra 360 (2012).

“High Stakes Testing Using WebAssign”, Proceedings of the Twenty-fourth International Conference on Technology in College Mathematics, Pearson Education Inc, 2012.

“Uniform Assessment of Precalculus Skills Using WebAssign”, Proceedings of the Twenty-second International Conference on Technology in College Mathematics, Pearson Education Inc, 2010.

“Testing Across Precalculus Sections Using WebAssign”, Proceedings of the Twenty-first International Conference on Technology in College Mathematics, Pearson Education Inc, 2009.

“Calculus Lab Transformation: from Derive to Derive and Biology”, Proceedings of DES-TIME conference, Dresden 2006.

Kaur, M. and Townsley, L., “Derive - A Mathematical Assistant”, Proceedings of DES-TIME conference, Dresden 2006.

Comar, T. and Townsley, L., “A Common Calculus Laboratory Course for Traditional Calculus and Biocalculus Students”, Proceedings of the International Conference on Technology in collegiate Mathematics, Orlando 2006.

“Proving the Fundamental Theorem of Calculus”, AP Calculus training coursepack, 2005.

“Why we use Theorem in Calculus”, Web article on <http://apcentral.collegeboard.com>, 2005.

“Why *DO* We Use Theorem in Calculus?”, Proceedings of the Conference: Technology and its Integration into Mathematics Education, Montreal Canada, 2004.

Carlson, J.F. and L. Townsley, *The Cohomology Rings of Finite Groups*, Kluwer, 2003.

“Multimedia Classes: Can there *ever* be too much technology?” Proceedings of the Vienna International Symposium on Integrating Technology into Mathematics Education, Vienna Austria, 2002.

“Crossroads: Choosing a 'New' CAS Platform”, Proceedings of the Thirteenth International Conference on Technology in College Mathematics, Addison-Wesley-Longman, 2000.

“Computer Algebra in Abstract Algebra”, invited submission to The International Journal of Computer Algebra in Mathematics Education, 1999.

“Enhancing College-Level Understanding of Group Theory with Technology”, Proceedings of the Fourth International Conference on Technology in Mathematics Teaching, Plymouth, UK, 1999.

“High-Tech Discoveries We Never Expected”, co-author James Kulich, Proceedings of the Ninth Annual International Conference on Technology in College Mathematics, Addison-Wesley, 1997.

The State of Computer Algebra in Mathematics Education, Berry, et. al, editors, contributing editor, Chartwell-Bratt, 1997.

“Using DERIVE to Teach Calculus”, Co-author Barbara Victor, in Graham, et al, *Mathematical Activities with DERIVE*, Chartwell-Bratt, 1997.

The DERIVE Calculus Workbook, Co-author Barbara Victor, HarperCollins, 1994. (Also Instructor's Guide)

“DERIVE use for Matrix Algebra and Linear Algebra Instruction”, Proceedings of the Fifth Annual International Conference on Technology in College Mathematics, Lewis Lum, editor, Addison-Wesley, 1994.

“Integrating Precalculus into Calculus I using DERIVE”, Proceedings of the Fourth International Conference on Technology in College Mathematics, Addison-Wesley, 1993.

“Calculus - Reformation or Affirmation? A Survey of Other Disciplines”, PRIMUS Vol. 1, No. 4, December 1991.

“Applications of Set Theory and Topology to Economics”, *Journal of Undergraduate Mathematics*, March, 1981.

PRESENTATIONS

“Geometry in Dance”, Invited Guest Lecture, First Year Odyssey Seminar, UGA, August 2023.

“Workplace Issues for Women in STEM”, Invited Panelist, Equity Engineering Council meeting, UGA, March 2023.

“Mentoring GTAs as They Teach: Providing Tools to Develop Successful Teachers”, AMS Special Session on Teaching Assistant Development Programs: Why and How?; Joint MAA/AMS Meetings, Atlanta, January 2017.

“An Inside Look at Teaching a MOOC”, Invited principal speaker, WebAssign User Group Conference, Raleigh-Durham, June 2014.

“MATH 1113 Precalculus Emporium: A Multi-Institutional Online Precalculus Course”, co-presenter with Ms. Arnold, Dr. Biesinger, Dr. Moon, Third Annual UGA STEM Institute on Teaching and Learning, Athens, April 2014.

“MOOC Precalculus (almost) at the University System of Georgia”, ICTCM 26 (International Conference on Technology in College Mathematics), San Antonio, March 2014.

“Going State-Wide with MOOC-like Precalculus in Coursera”, contributed paper at Joint MAA/AMS Meetings, Baltimore, January 2014.

“High Stakes Testing Using WebAssign”, Invited principal speaker, WebAssign User Group Conference, Raleigh-Durham, June 2013.

“Using WebAssign for Homework and Testing in Precalculus: Assessment of Student Performance”, contributed paper at Joint MAA/AMS Meetings, San Diego, January 2013.

“High Stakes Testing Using WebAssign”, Computer Minicourse at ICTCM 24 (International Conference on Technology in College Mathematics), Orlando, March 2012.

“WebAssign Testing in Precalculus: No Grading Necessary”, MAA-SE regional conference contributed paper, Morrow GA, March 2012.

“Effective Use of Online Homework to Enhance Student Learning and Retention”, Invited panelist for Project Next meeting prior to Mathfest, Lexington, August 2011.

“Using Online Assessment Effectively in Large Courses”, Mathfest contributed paper, Lexington, August 2011.

“Using WebAssign for Testing”, invited principal speaker, WebAssign Users Group Conference, Raleigh-Durham, June 2011.

“Uniform Assessment of Precalculus Skills Using WebAssign”, Twenty-second ICTCM (International Conference on Technology in College Mathematics), Chicago, March 2010.

“Using WebAssign for Uniform Assessment in Precalculus, 1300 Students at a Time”, contributed paper at Joint MAA/AMS Meetings, San Francisco, January 2010.

“Uniform Assessment of Precalculus Skills Using WebAssign”, Computer Minicourse at ICTCM (International Conference on Technology in Collegiate Mathematics), New Orleans, March 2009.

“A Joint Computer Lab can Serve Both Biocalculus and Traditional Calculus Students”, Joint MAA/AMS meetings, San Diego, January 2008.

“Introduction to Characters and Representations”, Elmhurst College Seminar, Elmhurst, March 2007.

“Using DERIVE to Emphasize Understanding in Linear Algebra”, Joint MAA/AMS meetings, New Orleans, January 2007.

“Calculus Lab Transformation: from Derive to Derive and Biology”, DES-TIME conference, Dresden, July 2006.

“Derive-A Mathematical Assistant”, workshop presented with M. Kaur, DES-TIME conference, Dresden, July 2006.

Invited panelist at Mathfest, “AP Calculus Workshop: Focusing on the Fundamental Theorem”, Albuquerque NM, August 2005.

“Math Majors at a "science serious" Liberal Arts College”, Mathfest, Albuquerque NM, August 2005.

Invited panelist on jobs for new PhDs, ISMAA, Galesburg IL, April 2005.

“The New CLEP Exam in Precalculus”, ISMAA, Galesburg IL, April 2005 and Mathfest, Albuquerque NM, August 2005.

“Introduction to DERIVE 6.0”, ICTCM 16 (International Conference on Technology in Collegiate Mathematics), New Orleans, October 2004.

“Why *DO* We Use Theorem in Calculus?”, International Conference: Technology and its Integration into Mathematics Education, Montreal Canada, July 2004 and ICTCM in New Orleans, October 2004.

Invited Panelist , MAA Project Next Session on publication in mathematics, MAA Mathfest, Boulder CO, August 2003.

“Multimedia Classes: Can there ever be too much technology?”, Vienna International Symposium on Integrating Technology into Mathematics Education, Vienna Austria, July 2002.

Panel Coordinator and Moderator, “Restructuring the Mathematics Bachelor Degree”, Joint MAA/AMS meetings, New Orleans, January 2001.

Panel Coordinator and Moderator, “Moving Beyond Computation”, International Conference on Technology in College Mathematics, Atlanta, November 2000.

Panel Coordinator and Moderator, “Q&A on IAI”, ISMAA annual meeting, North Central College, April 2000.

“Using DERIVE to Teach Calculus”, Invited Presentation to ISMAA annual meeting, North Central College, April 2000.

Keynote Address, "So, You Wanna Be an Amateur Mathematician", Pi Mu Epsilon Regional Undergraduate Mathematics Conference, St Norbert College, DePere, WI, November 1999.

"Enhancing College Level Understanding of Group Theory With Technology", International Conference on Technology in Mathematics Teaching, Plymouth, UK, August 1999.

"A Visit to Game Theory with von Neumann and Nash", Elmhurst College Seminar, Elmhurst, IL, 3/99 and Pi Mu Epsilon Regional Undergraduate Mathematics Conference, St Norbert's College, DePere, WI, November 1999.

"Emphasizing Applications over Computations with DERIVE", workshop presented with Barbara Victor at the International Derive and TI-92 Conference, Gettysburg, PA 7/98; Kansas City Regional Mathematics Technology EXPO 10/98; and International Conference on Technology in Collegiate Mathematics, Reno, NV, November 1998.

Working Group Leader, "How Can the Average Teacher be Attracted to Using DERIVE in the Classrooms?", Teaching Mathematics with DERIVE International Symposium, Honolulu, HI, July 1995.

"Freshman Mathematics Composition", International Conference on Technology in Collegiate Mathematics, Orlando, FL, November 1994.

"An Introduction to the DERIVE Calculus Workbook", International Conference on Technology in Collegiate Mathematics, Orlando, FL, November 1994.

Workshop: "Using DERIVE to Teach Calculus", The First International DERIVE Conference, Plymouth, UK, July 1994.

Workshop: "Introduction to DERIVE Software", Wisconsin Mathematics Council, 10/94 and St. Norbert's College Faculty, DePere, WI, April 1995.

"NSF at IBC", Poster Session at Joint Mathematics Meetings, Cincinnati, OH, January 1994.

"A Precalculus/Calculus Course at IBC", Conference on Integration of Precalculus with Calculus, Moravian College, Bethlehem, PA, June 1993.

"Visualization via Computer Graphics: Examples from Calculus", Joint Mathematics Meetings, San Antonio, TX, January 1993.

"DERIVE Workshop on Matrix and Linear Algebra", Illinois Council of Teachers of Mathematics, Peoria, IL, 10/92, and International Conference on Technology in Collegiate Mathematics, Chicago, IL, November 1992.

"Improving the Laboratory Experience for Calculus Students and Teachers", National Conference on Computing in the Calculus, Troy, NY, May 1992.

“Integrating Precalculus into Calculus I using DERIVE”, International Conference on Technology in College Mathematics, Portland, OR, 10/91, and Conference on College Mathematics: Teaching Technology and Applications, Grand Rapids, MI, March 1992.

“Calculus Renewal at a Small College”, Illinois Council of Teachers of Mathematics Annual Meeting, Peoria, IL, October 1991.

“First Year Experiences using Symbolic Software in Calculus”, with Barbara Victor, Joint Mathematics Meeting, Orono, ME, August 1991.

Workshop Co-Coordinator, Culpeper Foundation: “Calculus Renewal”, Illinois Benedictine College, Lisle, IL, July 1991.

Workshop Coordinator, “Introduction to DERIVE Software” October 1990, April 1991, May 1991, April 1993. Presented on site to Illinois Benedictine College (now Benedictine University) faculty/students, Associated Colleges of the Chicago Area faculty, Benet Academy faculty.

“Group Theory and Counting”, Elmhurst College Seminar, Elmhurst, IL, November 1990.

Panelist: “Calculus: Reformation or Affirmation?” Associated Colleges of the Chicago Area at Illinois Benedictine College, Lisle, IL, November 1990.

“Tailoring Discrete Mathematics to fit ACM Requirements”, Joint Mathematics Meetings, Louisville, KY January 1989.

“The Cohomology Ring of a Finite Abelian Group”, Northwestern University Seminar, Evanston, IL, January 1988.