

**Ximena Catepillán**  
**Professor Emerita of Mathematics, Millersville University of Pennsylvania**

[ximena.catepillan@millersville.edu](mailto:ximena.catepillan@millersville.edu)

---

Member of the **Mapuche** indigenous ethnic group, Chile

**ACADEMIC DEGREES:**

University of Iowa, Ph.D. Mathematics  
University of Iowa, M.S. Mathematics  
Universidad de Santiago, Chile, Magister in Mathematics

**PROFESSIONAL EXPERIENCE:**

Professor, Millersville University, Millersville, PA  
Teaching/Research Assistant, University of Iowa, IA  
Associate/Assistant Professor, Universidad de Magallanes, Patagonia, Chile  
Assistant Professor, Universidad Técnica del Estado, Osorno, Chile  
Adjunct professor, Universidad de Santiago, Santiago, Chile

**COURSES TAUGHT ABROAD:**

*Mathematics in Non-European Cultures*, MATH 102, Yucatan, Mexico, every summer 2006 – 2010. Courses offered with archaeologists from the Maya Exploration Center.  
*Mathematics in Non-European Cultures*, MATH 102 & *Social Work Community Services*, March 2016, Yucatan, Mexico. Course offered with archaeologists from the Maya Exploration Center.  
*Ancient Maya Mathematics & Modern Communities*, MATH 102 & *Social Work Community Services*, May 2018, Guatemala & Belize. Course offered with archaeologists from the Maya Exploration Center.  
*Ancient Maya Culture and Community Service at the Yucatan Peninsula*, Mexico, May 2019. Course offered with archaeologists from the Maya Exploration Center.

**COMMUNITY SERVICE:**

**Mexico, May 2019:** I teamed up with Millersville University MATH 102 students, and an archaeologist from Maya Exploration Center, to bring every student in Escuela Jose Vasconcelos in Ek Balam, Mexico, internet capable i-Pads. My students spent a day teaching the Maya students how to use the i-Pads. A whiteboard and a 1-year internet service were donated.

**Guatemala, May 2018:** I teamed up with Millersville University Math 102 students, and an archaeologist from Maya Exploration Center, to paint the elementary school Escuela Aldea Zocotzal in Flores, Guatemala. I taught (in Spanish) Maya Arithmetic, for two days, to first and second-grade Maya students.

**Mexico, May 2017:** I teamed up with Millersville University Math 102 students, and an archaeologist from Maya Exploration Center, to paint the elementary school Colegio El Apostol del Arbol in Yaxunah, Mexico. I taught (in Spanish) Maya Arithmetic to a sixth-grade class of Maya students.

**Lancaster, PA, 2008 – 2019:** I led Millersville University, UNIV 103, freshman seminar students (Culture, Science, and Mathematics in the pre-Columbian Americas), to do volunteer work in the annual United Way Day of Caring,

**RESEARCH AREAS:** Operator Theory, and Ethnomathematics with a focus on the mathematics and science of the Pre-Columbian Americas.

**COURSES DEVELOPED:**

*Tópicos en Etnomatemáticas*, Magister en Educación Matemática, Universidad de Santiago de Chile USACH, Chile 2021  
*Ethnomathematics*, Math697, Millersville University, Master in Mathematics Education, with Cynthia Taylor, 2014  
*Women in Mathematics and Science*, SCMA391/WSTU 391, D (Diversity) & P (Perspectives) course, Millersville University, with Natalia Dushkina and Nazli Hardy, 2008  
*Culture, Science and Mathematics in the pre-Columbian Americas*, UNIV 103, Millersville University, Freshman Seminar for undecided students, 2006

*Mathematics around the World*, EDW 757, Millersville University, Educational Workshop for K-12 mathematics teachers, with Dr. Janet White, 2006  
*College Algebra Enrichment*, MATH 107, 2001, Millersville University, with Robert Buchanan and Charles Denlinger  
*Mathematics in Non-European Cultures*, MATH 102, 1993, D (Diversity) course, Millersville University

#### BOOKS & BOOK CHAPTERS:

**MAA Press, Classroom Resource Materials**, chapter 1 in the book *Teaching Mathematics Through Cross – Curricular Projects*, with Cynthia Huffman, 2024  
**AMS/MAA Classroom Resource Materials**, chapter 23 in the book *Count Me In, Community and Belonging in Mathematics*, with Linda McGuire, 2022  
**MAA Notes Publishing**, chapter 22 in the book *Mathematical Themes in a First-Year Seminar*, January 2021 <https://old.maa.org/sites/default/files/pdf/pubs/books/members/NTE91.pdf>  
**Mathematics in a Sample of Cultures**, 2nd Ed. with two additional chapters, co-authors Waclaw Szymanski & Antonia Cardwell, Kendall-Hunt Publishing Co., August 2019. Revised 2<sup>nd</sup> Ed. August 2022.  
**Mathematics in a Sample of Cultures**, online revised version with Waclaw Szymanski & Antonia Cardwell, Kendall-Hunt Publishing Co., December 2018  
**Springer-Verlag Series**, chapter 19 for AWM Volume, *Mathematics Education, A Spectrum of Work in Mathematical Sciences Departments*, January 2017 <http://www.springer.com/series/13764>  
**Mathematics in a Sample of Cultures**, with Waclaw Szymanski, Kendall-Hunt Publishing Co., January 2016

#### PUBLICATIONS:

***Two Examples of Ethnomathematics: The intersection of culture, history, and mathematics***, with Cynthia Huffman, *Annals of the Canadian Society on the History and Philosophy of Mathematics CSHPM*, Birkhauser, Boston Inc., in print  
***Mathematics in faraway and forgotten places***, with Cynthia Huffman, *MAA Math Horizons*, February 2024  
***The History of Mathematics is the History of You***, *MAA Focus*, with HOM SIGMAA Executive Board, October 2023  
***Computations using Maya Numbers***, *Mexicolore UK online magazine for teachers*, [mexicolore.co.uk](http://mexicolore.co.uk), May 2023  
***Cómputos usando Números Maya***, *Mexicolore UK online magazine for teachers*, [mexicolore.co.uk](http://mexicolore.co.uk), September 2023  
***Maya Numbers and Computations***, *Aztlander Magazine of the Ancient Americas*, Vol.3, No. 1, January 2023  
***Misterios Matemáticos con Actividades para el Aula de Clases***, *MAA Convergence Journal*, with Cynthia Huffman and Scott Thuong, 2022  
***Mathematical Mysteries of Rapa Nui with Classroom Activities***, *MAA Convergence Journal*, with Cynthia Huffman and Scott Thuong, 2021  
***Zero in the pre-Columbian Americas***, with Alonso Méndez, *Maya Exploration Center*, 2017  
***NCTM's Integrating Math Project***, K-6 online anthology's collaborator, with Cynthia Taylor and Megan Rehm, February 2016  
***Maya Calendars in the Classroom***, *MTMS (Mathematics Teaching in the Middle School)*, with Cynthia Taylor and Megan Rehm, Vol.21, No.2, September 2015  
***Career profile: Gregory Coxson, Mathematical Engineer***, *MAA Math Horizons*, November 2014  
***Counting and Arithmetic of the Inca***, *Revista Latinoamericana de Etnomatemática RLE*, with Waclaw Szymanski, 2012  
***An Ethnomathematics Course for Non-Mathematics Majors***, *Proceedings of the 2011 AMATYC Conference*, 2011  
***Women in Mathematics and Science course at Millersville University***, *Proceedings of the 2011 AMATYC Conference with Natalia Dushkina*, 2011  
***Un curso interdisciplinario en matemáticas, ciencias, y los estudios de las mujeres en la Universidad de Millersville***, *Digital Journal Matematicalia*, Spain, with Natalia Dushkina and Nazli Hardy, 2010  
***Maya Calendar Conversions***, *Convergence Journal of the MAA*, with Waclaw Szymanski, 2010  
***The Calendars of the Maya***, *Proceedings of the 2009 AMATYC Conference*, with Waclaw Szymanski, 2009

**Linear Combinations of Isometries**, Rocky Mountain Journal of Mathematics, with Waclaw Szymanski, 2004

**Operadores en Espacios de Hilbert**, workshop lecture notes for the XXVIII Semana de la Matemática, 2001

**Semigroup Properties of Factors in the Polar Decomposition of the Operator de-Moivre Formula**, Proceedings of the American Mathematical Society, with Waclaw Szymanski, 1998

**A Model of a Family of Power Partial Isometries**, Far Eastern Journal of Mathematical Sciences, with Waclaw Szymanski, 1996

**Parameterization of Canonically Koszul Invertible Pairs**, Journal of Operator Theory, 1995

**Multiple Canonical Decomposition of Families of Operators and a Model for Quasinormal Families**, Proceedings of the American Mathematical Society, with Waclaw Szymanski and Marek Ptak, 1993

**Canonically Koszul Invertible, Koszul Invertible, and Subnormal Pairs of Operators on a Hilbert Space**, Ph.D. Thesis, University of Iowa, Iowa City, IA, 1991

**Matriz de Riemman de una Superficie de Género dos**, Journal Notas of the Mathematical Association of Chile, 1986

**Riemman Matrix of a Surface of Genus 2 with 5 Automorphisms**, Proceedings of the 2<sup>nd</sup> Conference in Complex Geometry, Chile, 1985

**Differential Equations and Discrete Groups**, Proceedings of the 1<sup>st</sup> Conference in Complex Geometry, Chile, 1984

#### SELECTED PRESENTATIONS: (Since 2015)

**MathFest2024, Invited Paper Session, When are we going to use this? : Interdisciplinary Projects in Pure Math Courses**, with Cynthia Huffman, Indianapolis, IN, August 2024

**California State University Monterey Bay, CSUMB, Helen Rucker Summer STEAM Pathway Program, Playing with Mathematics Around the World**, Monterey Bay, CA, July 2024

**Annual Meeting of the Pacific Northwest Section of the Mathematical Association of America**, Invited Lecture: *Ethnomathematics and Kinship Systems*, Anchorage, AK, June 21, 2024

**Annual Meeting of the Pacific Northwest Section of the Mathematical Association of America**, Invited Lecture: *Ethnomathematics: the connection between culture, history, and mathematics*, Anchorage, AK, June 20, 2024

**Millersville University and Franklin & Marshall College**, Colloquium presentation, *Tracing Unicursal Indigenous Graphs*, Millersville, PA, April 2024

**Adelphi University**, Pohle Colloquium, *Maya numbers and calendrical computations*, Garden City, NY, February 2024

**XCI Encuentro Annual Sociedad de Matemática de Chile, SOMACHI, La Etnomatemática en el Colapso de los Natchez**, Santiago, Chile, December 2023

**Hofstra Cultural Center, Hofstra University**, *Ethnomathematics: The connection between culture, history, and mathematics*, Hempstead, NY, October 2023

**Universidad de Santiago de Chile USACH**, *Misterios Matemáticos de Rapa Nui con Actividades para el Aula de Clases*, launch of Journal Morfismo for USACH mathematics alumni, Santiago, Chile, October 2023

**Universidad de Valparaíso IMUV**, Workshop, *Etnomatemáticas: Conexión entre Cultura, Historia y Matemáticas*, Valparaíso, Chile, July 2023 (canceled because of weather)

**Fundación Panameña para la Promoción de las Matemáticas, FUNDAPROMAT, Números Alrededor del Mundo**, virtual, Panama, June 2023

**California State University Monterey Bay, CSUMB, An Introduction to Ethnomathematics**, Second Summer Academy on Culturally Responsive Education, virtual, Monterey Bay, CA, June 2023

**Canadian Society for History and Philosophy of Mathematics, CSHPM, Congress of the Humanities and Social Sciences**, *Ethnomathematics: The intersection of culture, history, and mathematics*, with Cynthia Huffman, Toronto, Canada, May 2023

**Philadelphia Undergraduate Mathematics Conference, PUMC Rutgers University Camden**, sponsored by Bryn Mawr College, La Salle University, Rutgers University, and Temple University, Keynote speaker, *Ethnomathematics: The connection between culture, history, and mathematics*, Camden, NJ, April 2023

**Universidad de Valparaíso**, Colloquium presentation at Instituto de Matemáticas Universidad de Valparaíso, IMUV, *Etnomatemática: La Conexión entre cultura, historia y matemática*, Valparaíso, Chile, Marzo 2023

**Aztlander, Livestream Event, *Maya Numbers and Computations***, January 2023 Video recording at <https://youtu.be/EJdlI3rTREE>

**Universidad de Valparaíso, *Introducción a la etnomatemática***, conversación con estudiantes del Seminario Educación Matemática, Valparaíso, Chile, November 2022

**PASHoM, Philadelphia Area Seminar on the History of Mathematics, *Maya Calendar Computations***, virtual, Philadelphia, PA, November 2022

**Podcast interview with Michael Parker West, *The Way Out is Back Through***, Local School Districts NC, October 2022

**Pasadena College, Latinx Heritage Celebration, *A Virtual Mathematical Trip to pre-Columbian Cultures***, virtual, Pasadena, CA, October 2022

**Millersville University and Franklin & Marshall College, Colloquium presentation, *Mathematics and Kinship Systems***, Millersville, PA, September 2022

**Canadian Society on the History and Philosophy of Mathematics CSHPM, *Ethnomathematics and Kinship Systems***, virtual, Canada, July 2022

**Millersville University Honors & Awards Banquet, presentation *A Math Mystery in Rapa Nui***, Millersville, PA, May 2022

**West Chester University, Colloquium presentation, *Mathematics and Kinship Systems in Australia and the Republic of Vanuatu***, West Chester, PA, May 2022

**Fundación Panameña para la Promoción de las Matemáticas, FUNDAPROMAT, *Un Viaje Matemático por las Culturas Precolombinas, Parte 2***, virtual, Panama, February 2022

**Fundación Panameña para la Promoción de las Matemáticas, FUNDAPROMAT, *Un Viaje Matemático por las Culturas Precolombinas, Parte 1***, virtual, Panama, October 2021

**Olimpiadas Matemáticas de Chile, presentation, *Un Viaje Matemático a Rapa Nui***, virtual, Universidad de Santiago de Chile, Chile, August 2021

**Women in STEM & LLC, Millersville University, *Teaching About the Cultural Richness of Mathematics***, virtual, Millersville, PA, April 2020

**MathFest 2019, MAA Membership Committee, panel presenter and round table participant, Cincinnati, OH, August 2019**

**Universidad de la Frontera, *Un Curso de Etnomatemáticas y un Seminario de las Matemáticas de las Américas pre-Colombinas***, Keynote Speaker, Temuco, Chile, August 2018

**MathFest 2018, MAA Membership Committee, panel presenter and round table participant, Denver, CO, August 2018**

**MathFest 2018, *The History of the EPaDel Careers in Mathematics Conference***, officers meeting, Denver, CO, August 2018

**Millersville University Holocaust Memorial Night, presenter and round table participant, Millersville, PA, April 2017**

**PASSHEMA, Indiana University of Pennsylvania, *Ethnomathematics: Teaching About the Cultural Richness of Math***, Keynote speaker, Indiana, PA, March 2017

**Penn State University, *Maya Civilization***, presentation for math majors, Harrisburg, PA, 2016

**MathFest 2016, *A course on the mathematics of the pre-Columbian Americas***, Columbus, OH, August 2016

**Primer Congreso Latinoamericano de Etnomatemáticas, *Cero en las Américas pre-Colombinas***, Sololá, Guatemala, June 2016

**Penn State University, *Maya Calendars***, presentation for math majors, Harrisburg, PA, 2015

**AMATYC, *Women in Mathematics and Science Course at Millersville University***, with Natalia Dushkina, New Orleans, LA, November 2015

**MALAS Conference, *Building Interdisciplinary Bridges***, Millersville University, Millersville, PA, 2015

**MathFest 2015, *An Animation of the Maya Tzolkin Calendar***, with Megan Rehm and Cynthia Taylor, Washington DC, August 2015

**PCTM, *Maya Calendars in the Classroom***, with Megan Rehm and Cynthia Taylor, Lancaster, PA, August 2015

**JMM 2015, *Remarks on Vedic Arithmetic – Multiplication***, with Waclaw Szymanski, San Antonio, TX, January 2015

**MAA MATHEMATICAL ASSOCIATION OF AMERICA**

MAA Pacific Northwest Section PNW, **Invited speaker** for two presentations at the Annual Section Meeting:  
*Ethnomathematics: the connection between culture, history, and mathematics*, June 20,  
Anchorage, AK 2024

*Ethnomathematics and Kinship Systems*, June 22, Anchorage, AK 2024

MAA Congress member, Representative-at-Large for the Interests of Members Residing outside the United States, July 2024 – 2027

MAA HOM SIGMAA **Chair** History of Math Special Interest Group, January 2022 – 2025

MAA MathFest 2023 Ethnomathematics Session **Chair** organizer and moderator 2023

MAA T. Christine Stevens Award for Leadership Development, **Chair** 2022 – 2025

EPaDel Careers in Math Conference, Millersville University, Organizing Committee, Fall 2023

MAA MathFest 2021 Ethnomathematics Session **Chair** organizer and moderator 2021

MAA CUSP Committee on Undergraduate Student Programming, January 2021 – present

MAA EPaDel Spring Conference at Millersville University, Organizing Committee **Chair**, 2021

MAA EPaDel Bylaws Committee member, Fall 2018-Spring 2019

MAA EPaDel Section Representative Elections Committee, **Chair** Fall 2018

MAA **Chair EPaDel** Section (Eastern Pennsylvania & Delaware) 2017 – 2019

MAA JMM Ethnomathematics Session **Chair** organizer and moderator, Baltimore, MD, 2019

MAA Mentor for Project NexT, mentoring an NSF post-doc faculty at UPenn, August 2018 – 2019

MAA **Chair** Nominating Committee for EPaDel Representative to the Congress, September-December 2018

MAA **Vice-Chair** EPaDel Section (Eastern Pennsylvania & Delaware) 2015 - 2017

MAA Centennial Celebration, *The Musical* cast, Franklin & Marshall College, March 2015

MAA Member of Committee on Sections 2015 - 2020

MAA EPaDel **Chair** Nominating Committee, Fall 2014

MAA Mentor for the ECM (Early Career Mathematicians) Mentoring Network, 2014 – 2016

MAA JMM Ethnomathematics Session **Chair** organizer and moderator, San Antonio, TX, Jan. 2015

MAA HOM-SIGMAA representative for the EPaDel section, 2014 – 2020

MAA EPaDel Careers in Math Conference, Temple University, Organizing Committee, Fall 2013

MathFest 2011, Organizer and moderator for two sessions: History of Mathematics and its Uses in the Classroom, August 2011

MAA Travel Study Programs Committee, 2011 – 2014

MAA Member-at-large in the Executive Committee of the EPaDel section, 2007 – 2012

MAA EPaDel Student Chapter Coordinator 2009 – 2010

MAA EPaDel Silent Auction **creator** & coordinator for spring and fall conferences 2011 – 2015

MAA departmental liaison at Millersville University 2005 – 2020

MAA EPaDel Governor's Nominating Committee, Fall 2012

MAA EPaDel Fall Conference at Millersville University, Organizing Committee **Chair**, 2012 & 2017

MAA EPaDel Careers in Mathematics Conference Committee, Millersville University, **Chair**, 2009 & 2017

**MAA INTERSECTION NEWSLETTER ARTICLES:** Intersection is the newsletter for the officers of all 29 Sections of the Mathematical Association of America.

*Let's Increase the MAA's Student Membership!* Fall 2016

*Vendors at Section Meetings* Fall 2017

**BOOK REVIEWS:** *101 Careers in Mathematics* 3<sup>rd</sup> ed., with Antonia Cardwell, MAA Horizons Magazine, February 2015

**ABROAD WORKSHOPS/MINI-COURSES ATTENDED:** (Since 2005)

The following workshops have all been offered by archaeologists from the Maya Exploration Center (MEC) and Ancient Explorations.

***Zenith Passage at Ancient Angkor and Other Remote Khmer Ruins***, Cambodia, Ancient Explorations, August 2023

***Ancient American Pyramids: 4000 years of pyramid building in the Mississippi River Valley***, Ancient Explorations, June 2022

***Rapa-Nui: Exploring and Mapping its Ancient Villages***, Rapa-Nui, Chile, Ancient Explorations, July 2019  
(In December 2019 I received a temporary license by Tukuph Technology to review imagery obtained during the July trip.)

***The Amazon Basin of Brazil, Ancient Civilizations & Modern Tribes***, Center for STEM Education, Amazonas, Brazil, July 2017  
***The History, Culture and Artistic Traditions of Cuba***, Center for STEM Education, Cuba, July 2016  
***Ancient Inca Culture and Modern Ecology***, Center for STEM Education, Bolivia, June 2015  
***Workshop for college teachers of astronomy, mathematics and related areas***, Chautauqua (University of Texas, Austin), Chiapas, Mexico, August 2009  
***Workshop, Ancient Inca mathematics and culture: Cuzco, Machu Picchu, and the Nazca Lines***, Chautauqua (University of Texas, Austin), Peru, July 2008  
***Workshop, Ancient Inca mathematics and culture: Cuzco, Machu Picchu, and the Sacred Valley***, Chautauqua (University of Texas, Austin), Peru, June 2007  
***Workshop, Ancient Maya mathematics in the highlands of Guatemala***, Chautauqua (University of Texas, Austin), Guatemala, June 2006  
***Workshop, Ancient Maya mathematics in the ruins of Quintana Roo***, Chautauqua (University of Texas, Austin), Yucatan Peninsula, Mexico, June 2005

**PROFESSIONAL ORGANIZATIONS:**

**CSHPM** Canadian Society of the History and Philosophy of Mathematics  
**IMS** Institute of Maya Studies  
**MAA** Mathematical Association of America & **HOM SIGMAA**  
**AMS** American Mathematical Society, 1992 – 2020  
**AWM** Association of Women in Mathematics  
**SOMACHI** Sociedad de Matematica de Chile  
**AWS** Association for Women in Science  
**TWOWS** Third World Organization for Women in Science  
**AAPLAC** Association of Academic Programs in Latin America & the Caribbean  
**MALAS** Midwest Association for Latin American Studies  
**RELAET** Miembro de la Red Latinoamericana de Etnomatemática

**REFEREE:** **MAA** Convergence Journal, 2019 – present  
**JMC** Journal of Mathematics and Culture, 2010 – present  
**RLE** Revista Latinoamericana de Etnomatemáticas, 2014 – 2017  
**MAA** Mathematics Magazine, 2014

**EDITOR:** Revista Morfismo Universidad de Santiago de Chile USACH, 2022 – present  
MAA Convergence Editorial Board, 2020 – present

**SOCIEDAD DE MATEMATICA DE CHILE (SOMACHI):**

Ethnomathematics session organizer and moderator, Annual SOMACHI Conference, December 2021

**ADVISORY BOARD:** Member of the Advisory Board **FUNDAPROMAT**, Fundación Panameña para la Promoción de las Matemáticas, Panama, 2022 – present  
Member of the Advisory Board **Revista Morfismo** of Universidad de Santiago de Chile USACH, Chile, 2022 – present

**MILLERSVILLE UNIVERSITY COMMITTEES:** (Since 2015)

Millersville University Foundation, 2021 – present  
Millersville University Foundation, Chair Committee on Directors, 2023 – present  
President Transition Committee, 2018 – 2019  
Middle States Steering Committee, 2017 – 2020  
Middle States Group 1 Committee, 2017 – 2020  
Presidential Search Committee, appointed by the Council of Trustees, 2017 – 2018  
Strategic Advisory Council (SAC) co-chair, June 2015 – May 2019  
Strategic Plan Facilitation Team, June 2015 – May 2019  
Strategic Planning Steering Committee, June 2015 – May 2019  
SAC, Undergraduate Research Metric subcommittee, Fall 2015  
Tenure & Promotion Committee, School representative, 2013 – 2015

Multidisciplinary Studies Curriculum Committee, School representative, 2013 – 2015  
President's Advisory Leadership Council, Student Success Group, 2012  
Enhance Engaged Learning Experience, Transformation Action Idea Team, Millersville University, 2012  
APSCUF, Social Committee, 2011 – 2020  
Women's Studies Curriculum Committee, 2011 – 2020  
MU Foundation Board of Directors Member, 2010 – 2017  
MU Foundation, Committee on Directors, 2011 – 2017  
MU Wellness Program Committee, 2010 – 2015