

Wesley Marek Maciejewski

Curriculum Vitae

21 January, 2018

CONTACT INFORMATION

E-mail: wesley.maciejewski@sjsu.edu
Web: mathwes.ca
Residence: San José, California
Citizenship: Canadian

EDUCATION

Queen's University, Kingston, Ontario, Canada

Ph.D., 2012 (Advisor: Peter D. Taylor)

University of Calgary, Calgary, Alberta, Canada

M.Sc., Pure Mathematics, 2007

University of Alberta, Edmonton, Alberta, Canada

B.Sc. (Honours), Mathematics, 2005

EMPLOYMENT EXPERIENCE

San José State University, San José, California, USA

Current

Assistant Professor, tenure track
Developmental Mathematics Coordinator
Department of Mathematics

The University of Auckland, Auckland, New Zealand

2015

Lecturer (Assistant Professor in North American parlance), fixed term
Maths Education Unit, Department of Mathematics

The University of British Columbia, Vancouver, British Columbia, Canada

Science Teaching and Learning Fellow

2013 - 2014

Carl Wieman Science Education Initiative / Department of Mathematics

Postdoctoral Research Fellow

2012 - 2013

Department of Mathematics (Advisor: Christoph Hauert)

Queen's University, Kingston, Ontario

2008 - 2012

Teaching Fellow

Southern Alberta Institute of Technology, Calgary, Alberta

2007 - 2008

Mathematics Faculty

TEACHING EXPERIENCE

San José State University

Math 133A: Ordinary Differential Equations (Spring, 2018)

A large (~ 85), introductory ODE class.

Math 1005A: Elementary Mathematics 1 (Fall, 2017)

Our current, large (~ 950 students) developmental math course I coordinate.

Math 297: Professional Development in College Teaching (Fall, 2016, Spring and Fall, 2017)
TA training and development seminar.

Math 138: Complex Variables (Spring, 2017)
An introduction to complex variables.

Math 1006A: Elementary Mathematics I (Fall, 2016)
A first-year mathematics course on elementary mathematics for developmental students.
Class size: ~180.

The University of Auckland

Maths 108: General Mathematics (Summer, Fall, Winter, 2015)
A first-year mathematics course on elementary mathematics, linear algebra, and calculus.
Class size: ~190.

The University of British Columbia

MATH 102: Differential Calculus with Application to Life Sciences (Fall, 2013 and 2014)
A first-year course on differential calculus with an emphasis on life sciences applications. The second offering of this course was ‘flipped’: students were required to watch short videos and complete quizzes before class, while class time was devoted to interactive engagement activities. I was on a team of three instructors that developed the resources for the course. One of the videos I produced for the course is found here: <https://www.youtube.com/watch?v=E-owZqDrTkE>.

MATH 340: Linear Programming (Winter, 2014)
A course for third-year students in a variety of degree programs. The focus was on linear optimization problems and the simplex method. *Class size: ~50.*

MATH 103: Integral Calculus with Application to Life Sciences (Winter, 2013)
A first-year course on integral calculus with an emphasis on life sciences applications.
Class size: ~100.

Queen’s University

MATH 339: Evolutionary Game Theory (Winter, 2012)
A third-year course focusing on game theory and the evolution of behaviours. *Class size: ~140.*

APSC 174: Linear Algebra. (Spring, 2011)
A first-year linear algebra course for engineering students. *Class size: ~75.*

MATH 224: Applied Mathematics for Civil Engineers. (Fall, 2009 and 2010)
This large, second-year course consists of five weeks of statistics and six of ordinary differential equations. In addition to the three lectures per week, students also receive instruction in MatLab.
Class size: ~120.

MATH 126: An Introductory Calculus Course for Economics Majors. (Fall, 2008)
This is a first-year course focusing on elementary calculus. *Class size: ~100.*

Southern Alberta Institute of Technology

Instructor

I was the primary instructor for the following academic courses:

BMAT 205, Business Mathematics: Focused on basic interest and annuity calculations.

MATH 285, Calculus 2: A course on methods of integration.

STAT 220, Statistics 1: Introductory statistics; probability, distributions, sampling, basic statistical methods.

and the following non-academic courses, all of which centred on foundational mathematics in some form:

MATH 104, Math for Apprentice Trades
MATH 141, Math for Pre-Apprentices
MATH 206, Math for Printers 1
MATH 215, Non-Destructive Pipeline Testing Mathematics
MATH 255, Estimating

Coordinator/Instructor

May, 2008

I coordinated and instructed alongside a team of instructors in delivering a course sequence to visiting students from Angola. The group of sixty students were employees of Angola LNG, an Angola-based natural gas company, who were sent to Calgary to receive training at SAIT. I was the leader of a team of instructors who designed and taught a sequence of courses intended to provide the students with a solid understanding of foundational mathematics, chemistry, and physics.

Course Development

January, 2008 - June, 2008

I was a member of a team responsible for developing a series of high-school math equivalency courses. This involved interpreting the provincial curriculum, choosing a corresponding text, and developing on-line support materials.

University of Calgary, Calgary, Alberta

Teaching Assistant

2005 - 2007

EDUCATION
PUBLICATIONS

Maciejewski, W., and Tortora, C. (*under review*) Who are developmental mathematics students? Demographics and dispositions.

Maciejewski, W. (2017). Future-oriented Thinking and Activity in Mathematical Problem Solving. *Accepted for an ICME book on problem solving.*

Maciejewski, W. and Barton, B. (2016). Mathematical Foresight: Thinking in the Future to Work in the Present. *For the Learning of Mathematics*, 36(3).

Maciejewski, W. and Star, J. (2016). Developing Flexible Derivative Procedures in First-year Calculus. *Research in Mathematics Education*, DOI: 10.1080/14794802.2016.1148626.

Code, W., Merchant, S., Maciejewski, W., Thomas, M., and Lo, J. (2016). The Mathematics Attitudes and Perceptions Survey: a New Instrument to Assess Expert-like Behaviour Among Undergraduate Mathematics Students. *International Journal of Mathematics Education in Science and Technology*, DOI: 10.1080/0020739X.2015.1133854

Maciejewski, W. (2016). Instructors' Perceptions of their Students' Conceptions: The Case in Undergraduate Mathematics. *International Journal of Teaching and Learning in Higher Education*, 28(1), pp. 1-8.

Maciejewski, W. (2016). Flipping the Calculus Classroom: an Evaluative Study. *Teaching Mathematics and its Applications*, 35, DOI: 10.1093/teamat/hrv019

Maciejewski, W. and Merchant, S. (2015). Mathematical Tasks, Study Approaches, and Course Grades: A Year-by-year Analysis. *International Journal of Mathematics Education in Science and Technology*, DOI: 10.1080/0020739X.2015.1072881.

Gula, T., Hoessler, C., and Maciejewski, W. (2015). Seeking mathematics success for college students: a randomized field trial of an adapted approach. *International Journal of Mathematics Education in Science and Technology*, DOI: 10.1080/0020739X.2015.1029026.

Maciejewski, W. (2012). A College-level Foundational Mathematics Course: Evaluation, Challenges, and Future Directions. *Adults Learning Mathematics*, 7, pp.20-31.

Maciejewski, W. and Matthews, A. (2010). Who Are Community College Math Instructors? *College Quarterly*, 13(4).

Kajander, A., Mason, R., Taylor, P., Doolittle, E., Boland, T., Jarvis, D., and Maciejewski, W. (2010). Multiple visions of teachers understandings of mathematics. *For the Learning of Mathematics*, 30, pp. 50-56.

REFEREED
CONFERENCE
PUBLICATIONS
(EDUCATION)

Arden, A., Hardy, N., and Maciejewski, W. (*submitted*) Teaching first year mathematics courses in transition from secondary to tertiary. *Proceedings of the 2017 Canadian Mathematics Education Study Group*, Montréal

Maciejewski, W. (2017). Mathematical Knowledge as Memories of Mathematics. *PME* 41.

Maciejewski, W., Roberts, R., and Addis, D.R. (2016). Episodic Future Thinking in Mathematical Situations. *PME* 40.

Maciejewski, W. and Barton, B. (2016). A Framework for Students' Mathematical Foresight. *ICME* 13

Davies, B., Yoon, C., Griffith Moala, J., and Maciejewski, W. (2016). Principles for Designing Invention Tasks for Undergraduate Mathematics. *ICME* 13.

Maciejewski, W., Mgombelo, J., and Savard, A. (2011). Meaningful Procedural Knowledge in Mathematics Learning. In Liljedahl, P. (Ed.) *Proceedings of the 2011 Canadian Mathematics Education Study Group*, St. John's, Newfoundland and Labrador.

MATHEMATICS
PUBLICATIONS

Maciejewski, W. and Puleo, G. (2014). Environmental Evolutionary Graph Theory. *Journal of Theoretical Biology*, 360, pp. 117-128.

Taylor, P. and Maciejewski, W. (2014). Hamilton's Inclusive Fitness in Finite-structured Populations. *Philosophical Transactions of the Royal Society Series B*, 369, 20130360.

Maciejewski, W., Hauert, C., and Fu, F. (2014). Evolutionary Game Dynamics in Populations with Heterogeneous Structures. *PLoS Computational Biology*. DOI:10.1371/journal.pcbi.1003567.

Maciejewski, W. (2014). Reproductive Value on Evolutionary Graphs. *Journal of Theoretical Biology*, 340, pp. 283-293.

Taylor, P. and Maciejewski, W. (2012). An Inclusive Fitness Analysis of Synergistic Interactions in Structured Populations. *Proceedings of the Royal Society B*, 279, pp. 4596-4603.

Maciejewski, W. (2012). Resistance and Relatedness on an Evolutionary Graph. *Journal of the Royal Society Interface*, 69, pp. 511-517.

Maciejewski, W. (2010). An Analysis of the Orientation of an Orb-Web Spider. *Journal of Theoretical Biology*, 265, pp. 604-608.

UNREFEREED
PUBLICATIONS

Maciejewski, W. (*forthcoming*). On the teaching of procedures. *CMS Notes*.

Code, W. and Maciejewski, W. (2017). Mathematics Attitudes & Perceptions Survey: New Data & Alignment with Other Recent Findings. *Poster presented at the 2017 Research in Undergraduate Mathematics conference, San Diego*.

Maciejewski, W. and Tortora, C. (2017). An Alternate Characterisation of Developmental Mathematics Students. *Poster presented at the 2017 Reserch in Undergraduate Mathematics conference, San Diego.*

Maciejewski, W. (2014). An Online Discussion Forum in Undergraduate Mathematics: One Department's Experience. *Poster presented at the University of British Columbia's Teaching and Learning day.* Poster available online here: <http://mathwes.ca/PiazzaPoster.pdf>

Maciejewski, W. and Mamolo, A. (2010). Beyond the Superficial: Procedural Knowledge in University. In Liljedahl, P. (Ed.) *Proceedings of the 2010 Canadian Mathematics Education Study Group*, Vancouver, British Columbia.

Maciejewski, W. and Matthews, A. (2010). Who Are Community College Math Instructors...and Who Cares? In Liljedahl, P. (Ed.) *Proceedings of the 2010 Canadian Mathematics Education Study Group*, Vancouver, British Columbia.

Maciejewski, W. (2010). The Reconceptualization of Procedural Knowledge: Implications for the Community College. In Brigham, S. and Plumb, D. (Eds.) *Proceedings of the Canadian Association for the Study of Adult Education Annual Conference*, Montréal, Québec.

Maciejewski, W. (2009). The Role of Rote: What is Meaningful Practice? In Liljedahl, P. (Ed.) *Proceedings of the 2009 Canadian Mathematics Education Study Group*, Toronto, Ontario.

SUPERVISORY
EXPERIENCE

I have co-supervised, with Christoph Hauert, two NSERC Undergraduate Student Research Award holders at UBC during the Summer of 2013. I have also co-supervised (with Caroline Yoon, UAuckland) a B.Sc. (Honours) student in mathematics education at the University of Auckland and (with Christina Krause, Universität Duisberg-Essen) two MS students at the Universität Duisberg-Essen. I am currently supervising two MS/MA students at San José State University.

MAJOR
INTERNAL
FUNDING

Student Success, Excellence and Technology Fee (SSETF) Grant

Co-principal Investigator (with Stacy Gleixner)

2017-2019

Awarded by San José State University (\$640,000) for improvement of freshman transitional courses.

MAJOR
EXTERNAL
FUNDING

Basic Skills CSU/CCCS Partnership

SJSU Principal Investigator

2016-2018

Basic Skills Partnership, California Community College System, \$2,000,000. Bruce Simon and Beth Yeager, Principal Investigators. Various CSU and CCCS site investigators; Wes Maciejewski, SJSU Principal Investigator.

George Brown College/HRSDC, Toronto, Ontario

Investigator

2010 - 2012

Understanding Individual Numeracy: How Are We Doing? Does it Matter?, Human Resources and Social Development Canada, \$300,000. Crystal Kotow-Sullivan, Principal Invesitgator. Paul Balog, Dianne Bascombe, Wes Maciejewski, Asia Matthews, Investigators. May, 2010 - August, 2012.

JUMP Math, Toronto, Ontario

MITACS ACCELERATE Intern

2009 - 2010

I designed a college-level foundational math course based on the JUMP Math program. The course was piloted at George Brown College in Fall 2009. The results of this study were published in the international peer-reviewed journal *Adults Learning Mathematics*; see my publication list for details.

Bay Area Active Learning Workshop, Fremont, CA, January, 2018

- Developing flexible procedural knowledge in the college math classroom.

Psychology of Mathematics Education, Singapore, July, 2017.

- Mathematical Knowledge as Memory of Mathematics.

Canadian Mathematics Education Study Group, Montréal, June, 2017.

- Teaching First Year Mathematics Courses in Transition from Secondary to Tertiary (with Ann Arden and Nadia Hardy).

Research in Undergraduate Mathematics Education Annual Meeting XX, San Diego, California, USA, February, 2017.

- An Alternate Characterisation of Developmental Mathematics Students (with Cristina Tortora). *Poster presentation.*
- Mathematics Attitudes Perceptions Survey: New Data & Alignment with Other Recent Findings (with Warren Code). *Poster presentation.*

Universität Duisberg-Essen, Essen, Germany, January, 2017.

- Flipping the Calculus Classroom: What is it and does it *work*?
- Developmental Mathematics: An Opportunity?
- Mathematical Foresight: Thinking in the Future to Work in the Present.

Joint Mathematics Meetings, Atlanta, Georgia, USA, January, 2017.

- Choices Made by Students when Enacting Procedures (with Jon R. Star).
- Developmental Math Students' Dispositions Towards Mathematics.

Psychology of Mathematics Education, Szeged, Hungary, August, 2016.

- Episodic Future Thinking in Mathematical Situations (with Reece Roberts and Donna Rose Addis).
- Research Mathematicians and Mathematics Educators: Collaborations for Change in Undergraduate Mathematics (with Greg Oates).

International Conference on Mathematics Education, Hamburg, Germany, July, 2016.

- A Framework for Undergraduate Students' Mathematical Foresight (with Bill Barton).

Joint Mathematics Meetings, Seattle, USA, January, 2016.

- An Analysis of Undergraduate Students Mathematical Foresight, a Preliminary Report (with B. Barton).
- Mathematics Attitudes and Perceptions Survey: Assessing Students Expert-like Conceptions of Mathematics (presented by W. Code, with S. Merchant, J.Lo, and M. Thomas)

Community of Undergraduate Learning in the Mathematical Sciences, Auckland, September, 2016.

- A recent general-interest presentation of mine can be found here:
<https://www.youtube.com/watch?v=t2bLXN8W2IM>

Psychology of Mathematics Education Annual Meeting, Hobart, Australia, July, 2015.

- Mathematical Foresight: An Integral Part of Authentic Mathematical Activity (with B. Barton).

Joint Mathematics Meetings, San Antonio, USA, January, 2015. Four presentations:

- An Evaluation of a Flipped Calculus Classroom.
- Do We Know How Students View and Study Math?
- Developing Flexible Procedures in Undergraduate Calculus (with J. Star).
- Seeking Mathematics Success for College Students: A Randomized Field Trial of an Adapted Approach (with T. Gula and C. Hoessler).

PROFESSIONAL
DEVELOPMENT

Program for University Teaching and Learning, Certificates I-IV, April, 2010

The Program for University Teaching and Learning is a series of four certificates, with a focus on Foundations, Practical Experience, Scholarship, and Leadership, designed to expose the participant to a pedagogy of higher education and to help create reflective instructors. I have completed the requirements and have received all four certificates.

Teaching Assistant Professional Development Presenter, Queen's University 2009 - 2012.

I have hosted a variety of seminars and presentations for teaching assistants at Queen's University through their Centre for Teaching and Learning.

COMMUNITY AND
DEPARTMENT
SERVICE

Reviewer. Journals I have reviewed for include: Computers and Education; Canadian Journal of Science, Mathematics, and Technology Education; Journal of Mathematical Behavior; Evolution; Journal of Theoretical Biology; Entropy; the Proceedings of the Royal Society B; BioSystems; IEEE Transactions; Nature Scientific Reports; and Journal of the Royal Society Interface. I have also reviewed textbooks and supporting materials for Nelson Canada.

Committee Membership. Developmental Mathematics Curriculum Committee (SJSU), Mathematics Community Committee (UAuckland), Health and Safety (UBC), Tenure and Promotion Committee (Queen's), Appointments Committee (Queen's).

Seminar Organizer. I have organized mathematics education seminars and reading groups at UAuckland, UBC, Queen's, and UAlberta.

Summer Camp Guest Instructor. I enjoy being involved in summer science camps for primary and secondary school students. Camps include: SFU Electron Camp (2014), Science Quest at Queen's (2010, 2011), and CMS-ESSO Math Camp Calgary (2007).

REFERENCES

Peter Taylor (Ph.D. Advisor)
Professor
Department of Mathematics and Statistics
Queen's University
Telephone: 1.613.533.2434
E-mail: peter.taylor@queensu.ca

Warren Code (Education Research at UBC)
Assistant Director
Carl Wieman Science Education Initiative
The University of British Columbia
Telephone: 1.604.822.4691
E-mail: warcode@science.ubc.ca

Bill Barton (Education Research at UoA)
Professor
Department of Mathematics
The University of Auckland
Telephone: +64.9.373.7599 ext. 88779
E-mail: b.barton@auckland.ac.nz