CURRICULUM VITAE
April 2023

PERSONAL DATA:

Name:	Ross D. WILLARD
Citizenship:	Canada
Previous Citizenship:	USA (renounced 2017)
Languages:	English
Present Position:	Professor, Department of Pure Mathematics
	University of Waterloo
	Waterloo, Ontario, Canada
	N2L 3G1
	Telephone: (519) 888-4567 Ext. 45565
	E-mail: ross.willard@uwaterloo.ca

EDUCATION:

Degree	University	Year	Area
Ph.D.	University of Waterloo	May 1989	(universal algebra; Stanley N. Burris)
M.Math	University of Waterloo	Oct. 1984	(logic; Alan Adamson)
M.A.	University of Toronto	Nov. 1982	(history of mathematics; Charles V. Jones)
B.A.	Carleton College (USA)	June 1980	(liberal arts)

EMPLOYMENT:

Year	Position	Department	Institution
July 2000 - present	Professor	Pure Mathematics	Univ. Waterloo
July 1995 - June 2000	Associate Professor	Pure Mathematics	Univ. Waterloo
July 1992 - June 1995	Assistant Professor	Pure Mathematics	Univ. Waterloo
Sep. 1989 - Aug. 1992	Assistant Professor	Mathematics	Carnegie Mellon Univ.

ADMINISTRATIVE APPOINTMENTS:

Year	Position
July 2018 – June 2021	Associate Chair (Undergraduate Officer), Pure Mathematics Dept.
July 2008 – June 2012	Chair, Pure Mathematics Dept.
July 2006 – Dec 2006	Interim Director, Centre for Computational Math. in Industry & Commerce
July 1999 – June 2004	Director of First-Year Studies, Faculty of Mathematics

AWARDS

- University of Waterloo Alumni Gold Medal, 1989
- Best Theory Paper, CP 2010 (conference), for "Testing expressibility is hard."

PUBLICATIONS

Chapters in Books

(1) R. Willard, "An overview of modern universal algebra," pp. 197–220 in *Logic Colloquium '04*, eds. A. Andretta, K. Kearnes and D. Zambella, Lecture Notes in Logic, vol. 29, Cambridge U. Press, 2008.

(2) R. Willard, "Three lectures on the RS problem," pp. 231–254 in *Algebraic Model Theory*, eds. B. Hart, A. Lachlan and M. Valeriote, NATO ASI Series, Series C: Mathematical and Physical Sciences – vol. 496, Kluwer Academic Publishers, 1997.

Refereed Journal Articles

(3) K. Kearnes, Á. Szendrei and R. Willard, "Characterizing the commutators in varieties with a difference term," *Algebra Universalis* **83** (2022), article 17, 29 pages.

(4) M. Bodirsky, A. Mottet, M. Olšák, J. Opršal, M. Pinsker and R. Willard, "ω-categorical structures avoiding height 1 identities," *Trans. Amer. Math. Soc.* **374** (2021), 327–350.

(5) G.F. McNulty and R. Willard, "Congruence meet-semidistributive locally finite varieties and a finite basis theorem," *Algebra Universalis* **79** (2018), 44:1–20.

(6) B.A. Davey, J.G. Pitkethly, and R. Willard, "New-from-old full dualities via axiomatisation," *Ann. Pure Appl. Logic* **169** (2018), 588–615.

(7) K. Kearnes, Á. Szendrei, and R. Willard, "Simpler Maltsev conditions for (weak) difference terms in locally finite varieties," *Algebra Universalis* **78** (2017), 555–561.

(8) K. Kearnes, Á. Szendrei, and R. Willard, "A finite basis theorem for difference-term varieties with a finite residual bound," *Trans. Amer. Math. Soc.* **368** (2016), 2115–2143.

(9) M. Kozik, A. Krokhin, M. Valeriote, and R. Willard, "Characterizations of several Maltsev conditions," *Algebra Universalis* **73** (2015), 205–224.

(10) M. Valeriote and R. Willard, "Idempotent n-permutable varieties," *Bull. London Math. Soc.* **46** (2014), 870–880.

(11) W. Bentz, B. Davey, J. Pitkethky and R. Willard, "Dualizability of automatic algebras," *J. Pure Appl. Algebra* **218** (2014), 1324-1345.

(12) B. A Davey, J. G. Pitkethly and R. Willard, "The lattice of alter egos," *Internat. J. Algebra Comput.* **22** (2012), 1250007 (36 pp.)

(13) P. Idziak, P. Marković, R. McKenzie, M. Valeriote and R. Willard, "Tractability and learnability arising from algebras with few subpowers," *SIAM J. Comput.*, **39** (2010), 3023–3037.

(14) J. Berman, P. Idziak, P. Marković, R. McKenzie, M. Valeriote and R. Willard, "Varieties with few subalgebras of powers," *Trans. Amer. Math. Soc.* **362** (2010), 1445–1473.

(15) G. F. McNulty, Z. Székely and R. Willard, "Equational complexity of the finite algebra membership problem," *Internat. J. Algebra Comput.* **18** (2008), 1283–1319.

(16) D. M. Clark, B. A. Davey and R. Willard, "Not every full duality is strong!," *Algebra Universalis* **57** (2007), 375–381.

(17) B. A. Davey, J. G. Pitkethly and R. Willard, "Dualisability versus residual character: a theorem and a counterexample," *J. Pure and Applied Algebra*, **210** (2007), 423–435.

(18) B. A. Davey, M. Haviar and R. Willard, "Structural entailment," *Algebra Universalis* **54** (2005), 397–416.

(19) B. A. Davey, M. Haviar and R. Willard, "Full does not imply strong, does it?" *Algebra Universalis* **54** (2005), 1–22.

(20) R. Willard, "Determining whether $V(\mathbf{A})$ has a model companion is undecidable, *Internat. J. Algebra Comput.* **14** (2004), 325–355.

(21) K. A. Kearnes, E. W. Kiss, Á. Szendrei and R. Willard, "Chief factor sizes in finitely generated varieties," *Canad. J. Math.* **54** (2002), 736–756.

(22) D. M. Clark, P. M. Idziak, L. R. Sabourin, Cs. Szabo and R. Willard, "Natural dualities for quasivarieties generated by a finite commutative ring," *Algebra Universalis* **46** (2001), 285–320.

(23) B. A. Davey and R. Willard, "The dualisability of a quasi–variety is independent of the generating algebra," *Algebra Universalis* **45** (2001), 103–106.

(24) W. A. Lampe, G. F. McNulty and R. Willard, "Fully dualizable graph algebras and flat graph algebras," *Algebra Universalis* **45** (2001), 311–334.

(25) R. Willard, "Extending Baker's Theorem," *Algebra Universalis* **45** (2001), 335–344.

(26) R. Willard, "A finite basis theorem for residually finite, congruence meet-semidistributive varieties," *J. Symbolic Logic* **65** (2000), 187–200.

(27) J. Hyndman and R. Willard, "An algebra that is dualizable but not fully dualizable," *J. Pure Appl. Algebra* **151** (2000), 31–42.

(28) R. Willard, "Solution to the Chautauqua Problem," *Acta Sci. Math. (Szeged)* **65** (1999), 461–467.

(29) K. A. Kearnes and R. Willard, "Residually finite, congruence meet-semidistributive varieties of finite type have a finite residual bound," *Proc. Amer. Math. Soc.* **127** (1999), 2841–2850.

(30) K. A. Kearnes and R. Willard, "Finiteness properties of locally finite abelian varieties," *Int. J. Algebra and Comput.* **9** (1999), 157–168.

(31) J. Lawrence and R. Willard, "On finitely based groups and nonfinitely based quasivarieties," *J. Algebra* **203** (1998), 1–11.

(32) R. Willard, "Two finitely generated varieties having no infinite simple members," *Proc. Amer. Math. Soc.* **126** (1998), 629–635.

(33) R. Willard, "Tarski's finite basis problem via $A(T)$," *Trans. Amer. Math. Soc.* **349** (1997), 2755–2774.

(34) S. Burris and R. Willard, "Problem 17 of Gratzer and Kisielewicz," *Algebra Universalis* **36** (1996), 573–575.

(35) R. Willard, "Essential arities of term operations in finite algebras," *Discrete Math.* **149** (1996), 239–259.

(36) R. Willard, "On McKenzie's method," *Per. Math. Hungarica* **32** (1996),149–165.

(37) R. Willard, "Hereditary undecidability of some theories of finite structures," *J. Symbolic Logic* **59** (1994), 1254–1262.

(38) R. Willard, "Decidable discriminator varieties with lattice stalks," *Algebra Universalis* **31** (1994), 177–195.

(39) M. Valeriote and R. Willard, "Discriminating varieties," *Algebra Universalis* **32** (1994), 177–188.

(40) K. Kearnes and R. Willard, "Inherently nonfinitely based solvable algebras," *Canad. Math. Bull.* **37** (1994), 514–521.

(41) R. Willard "Decidable discriminator varieties from unary classes," *Trans. Amer. Math. Soc.* **336** (1993), 311–333.

(42) M. Valeriote and R. Willard, "Some properties of finitely decidable locally finite varieties," *Internat. J. Algebra Comput.* **2** (1992), 89–101.

(43) R. Willard, "Homogeneous locally finite varieties," *Algebra Universalis* **29** (1992), 301–302.

(44) M. Valeriote and R. Willard, "A characterization of locally finite congruence permutable varieties," *J. Algebra* **140** (1991), 362–369.

(45) R. Willard, "Varieties having Boolean factor congruences," *J. Algebra* **130** (1990), 130–153.

(46) R. Willard, "Congruence lattices of powers of an algebra," *Algebra Universalis* **26** (1989), 332–340.

(47) R. Willard, "A note on indecomposable lattices," *Algebra Universalis* **26** (1989), 257–258.

(48) R. Willard, "M_n as a 0,1-sublattice of Con**A** does not force the term condition," *Proc. Amer. Math. Soc.* **104** (1988), 349–356.

(49) S. Burris and R. Willard, "Finitely many primitive positive clones," *Proc. Amer. Math. Soc.* **101** (1987), 427–430.

(50) M. H. Albert and R. Willard, "Injectives in finitely generated universal Horn classes," *J. Symbolic Logic* **52** (1987), 786–792.

Refereed Conference Proceedings

(51) M. Bodirsky, A. Mottet, M. Olšák, J. Opršal, and R. Willard, "Topology is relevant (in the infinite-domain dichotomy conjecture for constraint satisfaction problems)," *LICS 2019* (34th Annual ACM/IEEE Symposium on Logic in Computer Science), 2019.

(52) L. Barto, M. Kozik and R. Willard, "Near unanimity constraints have bounded pathwidth duality," 27th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2012), 125–134, 2012.

(53) R. Willard, "Testing expressibility is hard," in D. Cohen (Ed.): CP 2010, LNCS 6308, 9–23, 2010.

(54) P. Idziak, P. Marković, R. McKenzie, M. Valeriote, and R. Willard, "Tractability and learnability arising from algebras with few subpowers," 22nd Annual IEEE Symposium on Logic in Computer Science (LICS 2007), 213–224, 2007.

(55) R. Willard, "The finite basis problem," *Contributions to general algebra* **15**, 199-206, Heyn, Klagenfurt, 2004.

Other Refereed Contributions

(56) L. Barto, A. Krokhin, and R. Willard, "Polymorphisms, and how to use them" (survey), in *The Constraint Satisfaction Problem: Complexity and Approximation*, A. Krokhin and S. Živný, eds., Dagstuhl Follow-Ups, vol. 7, 2017, pp. 1–44.

Nonrefereed Conference Proceedings

(57) R. Willard, "New tools for proving dualizability," *Dualities, Interpretability and Ordered Structures (Lisbon, 1997)* (J. Vaz de Carvalho and I. Ferreirim, eds.), Centro do Álgebra da Universidade de Lisboa, 1999, pp. 69–74.

Other

(58) S. Shaheen and R. Willard, "Algebras from finite group actions and a question of Eilenberg and Schützenberger," manuscript, 2022, arXiv:2212.00858, 15 pages.

(59) R. Willard, "Refuting Feder, Kinne and Rafiey," manuscript, 2017, arXiv:1707.09440, 12 pages.

(60) J. Shallit and R. Willard, "Kuratowski's Theorem for two closure operators," manuscript, 2011, arXiv:1109.1227, 6 pages.

INVITED TALKS AT CONFERENCES AND WORKSHOPS

(1) Second Algebra Week, Siena, Italy, June 28, 2019, "New algebraic insights from the solutions to the dichotomy conjecture" (2-hour plenary lecture).

(2) AAA 98, Dresden, Germany, June 21, 2019, "Similarity, critical relations, and Zhuk's bridges" (1-hour plenary lecture).

(3) BLAST 2019, Boulder, CO, May 20–24, 2019, "The Constraint Satisfaction Problem Dichotomy Theorem for beginners" (three 1-hour plenary tutorial lectures).

(4) ALH-2018, Honolulu, HI, May 23, 2018. "Independence of multi-term commutators and centralizers" (45-minute plenary lecture).

(5) BLAST 2017, Nashville, TN, August 15 and 17, 2017. "The finite basis problem, Jónsson's speculation, and weird algebras" (2-hour plenary tutorial).

(6) American Mathematical Society Spring Southeastern Sectional Meeting, Charleston, SC, March 10, 2017. "My favourite open problems in universal algebra" (invited 20-minute sessional lecture).

(7) Canadian Mathematical Society Winter Meeting, Niagara Falls, ON, December 4, 2016. "Jónsson's finite basis problem for finite algebras" (invited 25-minute sessional lecture).

(8) American Mathematical Society Fall Western Sectional Meeting, Denver, CO, October 8, 2016. "Series-parallel posets having a near-unanimity polymorphism" (invited 20-minute sectional lecture).

(9) Logic Colloquium 2016, Leeds, UK, August 1, 2016. "The decidable discriminator variety problem" (invited 40-minute sessional lecture).

(10) Algebra and Algorithms, University of Colorado, Boulder, CO, May 19, 2016. "Constraint Satisfaction Problems: A Survey" (50-minute plenary lecture).

(11) Dagstuhl Seminar 15301, Schloss Dagstuhl, Germany, July 21, 2015. "Maltsev constraints revisited" (50-minute plenary lecture).

(12) Open Problems in Universal Algebra, Nashville, TN, May 28, 2015. "Maltsev constraints" (50-minute plenary lecture).

(13) Algebraic and Model Theoretical Methods in Constraint Satisfaction (workshop), BIRS, Banff, November 24, 2014, "Universal Algebra and CSP tutorial" (50-minute plenary tutorial lecture).

(14) SSAOS 2014, Stará Lesná, Slovakia, September 7, 8 and 10, 2014, "Constraints and universal algebra" (three 60-minute plenary lectures).

(15) 87th Arbeitstagung Allgemeine Algebra (AAA87), Linz, Austria, February 7, 2014, "The finite basis problem revisited" (50-minute plenary lecture).

(16) American Mathematical Society Fall Southeastern Sectional Meeting, Louisville, KY, October 5, 2013, "Varieties with a difference term and Jónsson's problem" (invited 20-minute sessional lecture).

(17) GAIA 2013, Melbourne, Australia, July 19, 2013, "Varieties with a difference term and Park's conjecture" (50-minute plenary lecture).

(18) NSAC 2013, Novi Sad, Serbia, June 6, 2013, "Graphs, polymorphisms, and multi-sorted structures" (50-minute plenary lecture).

(19) American Mathematical Society Spring Western Sectional Meeting, Boulder, CO, April 14, 2013. "Bipartite graphs and their idempotent polymorphisms" (invited 20-minute sessional lecture).

(20) Dagstuhl Seminar 12451, Schloss Dagstuhl, Germany, November 5 and 6, 2012. "A tutorial on algebra and the constraint satisfaction problem" (90-minute plenary tutorial).

(21) LICS 2012, Dubrovnik, Croatia, June 27, 2012. "Near unanimity constraints have bounded pathwidth duality" (10-minute talk).

(22) Universal Algebra and Lattice Theory, Szeged, Hungary, June 24, 2012. "Proving inconsistency: towards a better Maltsev CSP algorithm" (50-minute plenary lecture).

(23) American Mathematical Society sectional meeting, Honolulu, March 3, 2012. "Meditation on Isaev's algebra" (invited 25-minute sessional talk).

(24) 2nd International Conference on Order, Algebra and Logics, Kraków, Poland, June 9, 2011. "Relational structures, Maltsev conditions, and CSP" (50-minute plenary lecture).

(25) American Mathematical Society sectional meeting, Iowa City, March 19, 2011. "A new property of finite NU(4) algebras" (invited 20-minute sessional lecture).

(26) CP 2010, St. Andrews, Scotland, September 7, 2010. "Testing expressibility is hard" (30-minute plenary lecture, best theory paper prize).

(27) ICAL 2010, Prague, June 24, 2010. "The relational clone membership problem is hard" (30-minute plenary lecture).

(28) BLAST 2010, Boulder, June 3 and 5, 2010. "Universal algebra, Mal'cev conditions, and finite relational structures" (2-hour plenary tutorial).

(29) Dagstuhl Seminar 09441, Schloss Dagstuhl, Germany, October 30, 2009. "∃-InvSat (a.k.a. pp-definability) is co-NExpTime-complete" (1-hour plenary lecture).

(30) American Mathematical Society sectional meeting, Urbana-Champaign, Illinois, March 29, 2009. "The complexity of pp-definability" (invited 20-minute lecture).

(31) Summer School on General Algebra and Ordered Sets, Třešť, Czech Republic, September 1–5, 2008. "Universal algebra and complexity theory" (plenary 3-hour tutorial).

(32) Workshop on applications of universal algebra and logic to the constraint satisfaction problem, AIM, March 31–April 4, 2008. "Algebras with few subpowers" (1-hour plenary seminar).

(33) Workshop on Universal Algebra and the Constraint Satisfaction Problem, Nashville, June 18, 2007. "An overview of modern universal algebra" (2-hour plenary tutorial).

(34) International Conference on Order, Algebra and Logics, Nashville, June 14, 2007. "Four unsolved problems in congruence permutable varieties" (60-minute plenary lecture).

(35) American Mathematical Society Winter Annual Meeting, New Orleans, Jan. 7, 2007. "Full natural dualities" (20-minute invited special session lecture).

(36) American Mathematical Society Fall Central Section Meeting, Lincoln, Nebraska, Oct 21, 2005. "Nondualizability of finite algebras with a semilattice operation" (25-minute invited special session lecture).

(37) Novi Sad Algebraic Conference, Novi Sad, Serbia, July 13, 2005. "The full implies strong problem" (50-minute plenary lecture).

(38) Conference on Universal Algebra and Lattice Theory, Szeged, Hungary, July 7, 2005. "The full implies strong problem" (30-minute plenary lecture).

(39) American Mathematical Society Fall Southeastern Section Meeting, Nashville, Oct 16–17, 2004. "On a question of G. McNulty" (20-minute invited special session lecture).

(40) Logic Colloquium 2004 (Association of Symbolic Logic European Summer Meeting), Torino, Italy, July 25–31, 2004. "An overview of modern universal algebra" (3-hour plenary tutorial).

(41) 66th Arbeitstagung Allgemeine Algebra (AAA66), Klagenfurt, Austria, June 19–22, 2003. "The finite basis problem" (45-minute plenary lecture).

(42) Workshop in Tame Congruence Theory, Alfréd Rényi Mathematical Research Institute, Hungarian Academy of Sciences, Budapest, July 4, 2001, "Term conditions I,II" and "Interpretations" (three 1-hour plenary lectures).

(43) Canad. Math. Soc. Summer Meeting, Saskatoon, June 2, 2001, "Palyutin's h-formulas and a problem from universal algebra" (25-minute invited lecture).

(44) Amer. Math. Soc. Southeastern Section meeting, Columbia, SC, March 16, 2001, "Varieties having boolean factor congruences" (20 min. invited lecture).

(45) Canad. Math. Soc. Winter meeting, Kingston, Ont. Dec. 15, 1998, "Independence of the linear commutator" (30 min. lecture).

(46) Conference on Lattices and Universal Algebra, Szeged, Hungary, August 3, 1998, "Extending Baker's theorem" (1-hour plenary lecture).

(47) Assoc. Symbolic Logic annual meeting, Toronto, May 23, 1998, "A (non-)progress report on the decidable discriminator variety problem" (25 min. lecture).

(48) Amer. Math. Soc. Section Meeting, Louisville, KY, March 21, 1998, "The restricted Quackenbush conjecture" (20 min. lecture).

(49) Workshop on Dualities, Interpretability and Ordered Structures, Lisbon, Sept. 27, 1997, "New tools for proving dualizability, with an application to commutative rings" (1-hour plenary lecture).

(50) Canad. Math. Soc. Summer Meeting, Winnipeg, June 9, 1997, "Discriminator varieties which do not interpret graphs" (45 min. lecture).

(51) NATO Advanced Studies Institute on Algebraic Model Theory, Fields Institute, Toronto, August 22–24, 1996, "Undecidability of Tarski's finite basis problem and other decision problems" (three 1-hour plenary lectures).

(52) Conference in Model Theory and Universal Algebra, Altai, C.I.S., June 23 and 24, 1995, "Structured discriminator varieties" (two 1-hour plenary lectures).

(53) 50th Arbeitstagung Allgemeine Algebra (AAA50), Technische Hoschule, Darmstadt, Germany, June 17, 1995, "Baker's theorem revisited" (1-hour plenary lecture).

(54) Lattices, Ordered Sets and Universal Algebra, Szeged, Hungary, Aug. 1993, "The unification type of finite algebras" (1-hour plenary lecture).

(55) Conference on Universal Algebra and Category Theory (M.S.R.I., July 1993), "Tame congruence theory; why the big fuss" (1-hour plenary lecture).

(56) International Workshop on Decidable Varieties, Waterloo, Ont., June 1991: "Discriminator Varieties I, II" and "Discriminator Varieties – Overview" (three 1-hour plenary lectures).

Another notable invited talk

(57) 25th Evelyn Nelson Lecture, McMaster University, February 10, 2017. "Finiteness conditions on the equational laws of finite algebraic structures."

GRANT RECORD

2019–2024	NSERC DG	$17,000/year
2014–2019	NSERC DG	$18,000/year
2008–2013	NSERC DG	$22,000/year
2003–2008	NSERC DG	$20,000/year
1999–2003	NSERC DG	$14,700/year
1998–1999	NSERC DG	$12,320
1995–1998	NSERC DG	$11,200/year
1992–1995	NSERC DG	$10,000/year

ACADEMIC SUPERVISION

Postdoctoral Fellows

Alexander Wires	July 2013 – June 2015
Salma Shaheen	May 2021 – June 2023

Graduate Students

Anthony Bonato	MMath	1994
" "	PhD	1998
Dejan Delić	PhD	1998
Bonnie Edwards	MMath	2000
Jamie MacDonald	MMath	2000
Daniel Cook	MMath	2000
Wolfram Bentz	PhD	2005
Boža Tasić	PhD	2006
Eric Martin	MMath	2009
Joanna Fawcett	MMath	2009
Graeme Turner	MMath	2010
Siwei Gao	MMath	2012
Ian Payne	MMath	2012
" "	PhD	2017
David Peterson	MMath	2013
Renzhi Song	MMath	2013
" "	PhD	2018
Winnie Lam	MMath	2014
Justin Laverdure	MMath	2017
Jake Zimmerman Simmons	MMath	2018
Jeremy Nicholson	MMath	2018
Robert Morissette	MMath	2022
Clement Wan	MMath	2022
Sam Cookson	MMath	

Undergraduate Research Assistants

Lousindi Sabourin	Spring	1994	
" "	Spring	1995	
Avinash Kulkarni	Spring	2011	(co-supervised; Fields/Mitacs)
Hao Lui	Spring	2011	(co-supervised; Fields/Mitacs)
Daniel Perkins	Spring	2011	(co-supervised; Fields/Mitacs)
David McLaughlin	Winter	2013	
Adam Jaffe	Spring	2016	
Emily Carlson	Fall	2020 (full time) and Winter 2021 (part time)	
Mehul Gupta	Fall	2020 (full time) and Winter 2021 (part time)	

TEACHING (last 7 years)

Term	course	course name	enrolment
Winter 2023	MATH 146 §2	Linear Algebra I (Advanced Level)	77
Fall 2021	PMATH 930	Topics in Logic: Intro to Universal Algebra	15
Winter 2021	MATH 146	Linear Algebra I (Advanced Level)	141*
Fall 2020	PMATH 347	Groups and Rings	89**
Winter 2020	MATH 106	Applied Linear Algebra I	61
Winter 2020	MATH 146 §1	Linear Algebra I (Advanced Level)	80
Winter 2019	MATH 146 §1	Linear Algebra I (Advanced Level)	57
Winter 2019	MATH 146 §2	Linear Algebra I (Advanced Level)	54
Fall 2017	PMATH 330	Intro to Mathematical Logic	54
Fall 2017	PMATH 930	Topics in Logic: Intro to Universal Algebra	10
Winter 2017	MATH 146 §1	Linear Algebra I (Advanced Level)	73
Winter 2017	MATH 146 §2	Linear Algebra I (Advanced Level)	58
Fall 2016	MATH 135 §3	Algebra for Honours Math	60

* online; co-taught with Giang Tran
** online

I was on administrative leave during the Winter 2018 term, and on sabbatical leave during the 2022 calendar year.

MISCELLANEOUS SERVICE (last 7 years)

Membership on Editorial Boards
- *Internat. J. Algebra Computat.*
- *Algebra Universalis*
- *Rep. Math. Logic*

Refereeing
- *Algebra Universalis*
- *Archive Math. Logic*
- *Internat. J. Algebra Computat.*
- *J. Assoc. Comput. Mach.*
- *J. Euro. Math. Soc.*
- *J. Multiple-Valued Logic Soft Comput.*
- *J. Symbolic Logic*

- *Math. Logic Quarterly*
- *Order*
- *Trans. Amer. Math. Soc.*
- FOCS
- ICALP
- LICS
- SODA
- STOC

Society Memberships
- Canadian Mathematical Society
- American Mathematical Society
- Association for Symbolic Logic