Curriculum Vitae

William Gordon McCallum

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Education

1984	Ph. D., Harvard University, under the direction of Barry Mazur
1977	B. Sc., University of New South Wales, Sydney

Employment (last 20 years)

2016–	President, Illustrative Mathematics
2014–2016	President and CEO, Illustrative Mathematics
2009–13	Head, Department of Mathematics, University of Arizona
2006–9	Director, Institute for Mathematics and Education
2006–2018	University Distinguished Professor, University of Arizona
1996–2005	Professor, University of Arizona

Visiting Positions

2006/1–5	Fellow of the Udall Center for Studies in Public Policy, University of Arizona
2001/3	Prof. Invité, Université Joseph Fourier, Grenoble

2001/2	Prof. Invité, Université de Paris-Sud, Orsay
2000/9–12	Visitor, Institut des Hautes Études Scientifiques,
1996/7	Visitor, Institut des Hautes Études Scientifiques
1995–96	Fellow, Institute for Advanced Study
1995/7	Prof. Invité, Université de Bordeaux I
1993–94	Visitor, Institut des Hautes Études Scientifiques
1991/1–6	Visiting Lecturer, Macquarie University, Sydney

Honors and Awards

2012	Mary P. Dolciani Award, Mathematical Association of America
2012	AMS Award for Distinguished Public Service
2006	University of Arizona College of Science Galileo Circle Fellow
2005	NSF Director's Award for Distinguished Teaching Scholars
1996	University of Arizona College of Science Innovation in Teaching Award
1995	American Mathematical Society Centennial Research Fellowship

Publications

1. Coherence and Fidelity of the Function Concept in School Mathematics. In Weigand et al (eds), *The Legacy of Felix Klein*, Springer, 2019 (to appear).

2. Excavating School Mathematics. In Wasserman (ed), *Connecting Abstract Algebra to Secondary Mathematics, for Secondary Mathematics Teachers*, Springer, 2018.

3. (with Al Cuoco) The Double Continuity of Algebra. In Kaiser et al (eds), *Invited Lectures form the 13th International Congress on Mathematical Education*, Springer, 2018.

4. (with Al Cuoco) Curricular Coherence in Mathematics. In Li et al (eds), *Mathematics Matters in Education: Essays in Honor or Roger Howe*, Springer, 2017.

5. The Common Core State Standards in Mathematics. In Cho (ed), *Selected Regular Lectures from the 12th International Congress on Mathematical Education*, Springer, 2015.

6. (with Bjorn Poonen) The method of Coleman and Chabauty. In K. Belabas, editor, *Explicit Methods in Number Theory: Rational Points and Diophantine Equations*, Soc. Math. de France, 2013.

7. Restoring and Balancing In Usiskin, Anderson, and Zotto (eds), *Future Curricular Trends in School Algebra and Geometry*, Information Age Publishing (2010)

8. (with Benjamin Levitt) Yet more elements in the Shafarevich-Tate group of the jacobian of a Fermat curve. In Lauter, Kristin E. and Ribet, Kenneth A. (eds), *Computational Algebraic Geometry*, Contemporary Mathematics, Vol. 463. AMS, 2008.

9. Assessing the strands of student proficiency in elementary algebra. In Alan H. Schoenfeld, editor, *Assessing Mathematical Proficiency*, volume 53 of *Mathematical Sciences Research Institute Publications*, New York, 2007. Cambridge University Press.

10. Computer algebra and human algebra. In Ki Hyoung Ko and Dean Arganbright, editors, *Enhancing University Mathematics*, volume 14 of *CBMS Issues in Mathematics Education*, pages 43–50, Rhode Island, 2007. American Mathematical Society.

11. Promoting work on education in mathematics departments. *Notices of the AMS*, pages 1093–1098, October 2003.

12. (with Pavlos Tzermias) On Shafarevich-Tate groups and the arithmetic of Fermat curves. In *Number theory and algebraic geometry*, volume 303 of *London Math. Soc. Lecture Note Ser.*, pages 203–226. Cambridge Univ. Press, Cambridge, 2003.

13. (with Romyar T. Sharifi) A cup product in the Galois cohomology of number fields. *Duke Math. J.*, 120(2):269–310, 2003.

14. (with Randall M. Richardson) The third R in literacy. In Bernard L. Madison and Lynn Arthur Steen, editors, *Quantitative Literacy: Why Numeracy Matters for Schools and Colleges*, pages 99–106, Princeton, 2003. NCED.

15. Thinking out of the box. In James T. Fey, editor, *Computer Algebra Systems in Secondary School Mathematics Education*. NCTM, 2003.

16. Greenberg's conjecture and units in multiple $\mathbb{Z}_p$-extensions. *Amer. J. Math.*, 123:909–930, 2001.

17. Brauer points on fermat curves. *Bull. Austral. Math. Soc.*, 63:393–406, 2001.

18. (with Sang Yook An, Seog Young Kim, David C. Marshall, Susan H. Marshall, and Alexander R. Perlis) Jacobians of genus one curves. *J. Number Theory*, 91(2):304–315, 2001.

19. The goals of the calculus course. In Susan L. Ganter, editor, *Calculus Renewal, Issues for Undergraduate Education in the Next Decade*, chapter 2, pages 11–22. Kluwer Academic, New York, 2000.

20. Will this be on the exam? In Steven G. Krantz, editor, *How to Teach Mathematics*, pages 233–240. American Mathematical Society, Providence, 1999.

21. A duality theorem in the multivariable Iwasawa theory of local fields. *J. reine angew. Math.*, 464:143–172, 1995.

22. On the method of Coleman and Chabauty. *Math. Ann.*, 299:565–596, 1994.

23. The arithmetic of Fermat curves. *Math. Ann.*, 294:503–511, 1992.

24. Rigor in the undergraduate calculus curriculum. *Notices of the AMS*, 38(9):1131–1132, 1991.

25. Kolyvagin's work on Shafarevich-Tate groups. In J. Coates and M. J. Taylor, editors, *L-functions and Arithmetic, Proceedings of the Durham Symposium, July, 1989*, volume 153 of *LMS Lecture Note Series*, pages 295–316, Cambridge, 1991. Cambridge University Press.

26. Tate duality and wild ramification. *Math. Ann.*, 288:553–558, 1990.

27. On the Shafarevich-Tate group of the Jacobian of a quotient of the Fermat curve. *Invent. Math.*, 93(3):637–666, 1988.

28. (with Robert Coleman) Stable reduction of Fermat curves and Jacobi sum Hecke characters. *J. reine angew. Math.*, pages 41–101, 1988.

29. Duality theorems for Nèron models. *Duke Math. Journal*, 53:1093–1124, 1986.

30. The degenerate fibre of the Fermat curve. In *Number theory related to Fermat's last theorem (Cambridge, Mass., 1981)*, volume 26 of *Progr. Math.*, pages 57–70. Birkhäuser Boston, Mass., 1982.

BOOKS

1. *Algebra: Form and Function*, McCallum, Connally, Hughes-Hallett et al., John Wiley & Sons, New York, 2010.

2. *Applied Calculus*, Fraser-Locke, Hughes-Hallett, Gleason et al., John Wiley & Sons, New York, four editions, 1999–.

3. *Multivariable Calculus*, McCallum, Hughes-Hallett, Gleason et al., John Wiley & Sons, New York, four editions, 1997–

4. *Calculus*, Hughes-Hallett, Gleason et al., John Wiley & Sons, New York, five editions, 1993–.

5. *Teaching Mathematics in Colleges and Universities: Case Studies for Today's Classroom*, by Solomon Friedberg. Contributor with many others, American Mathematical Society, 2001.

6. *Contemporary Issues in Mathematics Education*, proceedings of a conference held at MSRI in December 1996, co-editor with Steven Krantz and Estela Gavosto, Cambridge University Press, 1999

Grants since 2010

	Through Illustrative Mathematics:
2013–	Over $11M in funding from the Bill & Melinda Gates Foundation, Brookhill Foundation, Chan Zuckerberg Initiative, Charles and Lynn Schusterman Family Foundation, Helmsley Charitable Trust, William and Flora Hewlett Foundation, and W.K. Kellogg Foundation.
	Through the University of Arizona:
2013–	*Middle School Blueprints*, 100%, The William and Flora Hewlett Foundation.
2013–2014	*High School Blueprints*, 100%, The William and Flora Hewlett Foundation.
2011–15	*The Illustrative Mathematics Project*, 100%, The Bill and Melinda Gates Foundation
2010–	*Progressions Documents for the Common Core Math Standards*, 100%, Brookhill Foundation

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Selected Service

2018–	Associate Editor for the Notices of the AMS
2018	Chair of committee to revise Longitudinal Studies Assessment Framework, National Council on Educational Statistics
2013–2018	AMS Committee on the Profession
2013–2017	MAA Committee on the James R. C. Leitzel Lecture.
2008–2013	MAA Committee on the Mathematical Education of Teachers.

2009–10	Chair of work team and lead writer for the Common Core State Standards in Mathematics
2008–	Cochair of update committee for Achieve high school benchmarks
2008–10	Chair of Conference Board of the Mathematical Sciences
2007–8	Revisions committe for Arizona state standards
2007–8	Writing group for NCTM high school curriculum document