Jim Fowler

Curriculum Vitae

The Ohio State University ▪ Department of Mathematics
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Education

University of Chicago 2003–2009
Chicago, Illinois

M.S. in Mathematics, June 2005.
Ph.D. in Mathematics, June 2009.

Harvard University 1999–2003
Cambridge, Massachusetts

A.B. in Mathematics, *summa cum laude*, June 2003.
Junior Phi Beta Kappa.

Employment

The Ohio State University, Program Manager 2013

Mathematics 2568: Linear Algebra.
Calculus Two MOOC on Coursera (23k student enrollments).

The Ohio State University, Lecturer 2012–2013

Calculus One MOOC on Coursera (87k student enrollments).
iTunesU Calculus One (ranked #1 in Summer 2013; 37k subscribers).
Mathematics 1151: Calculus I.
Mathematics 1161: Accelerated Calculus I.
Mathematics 1181: Honors Calculus I.

The Ohio State University, Ross Mathematics Program Summer 2010–2013

Ran a number theory recitation for high school students; taught a piecewise-linear topology course for undergraduate and high school students.

The Ohio State University, Zassenhaus Assistant Professor 2009–2012

Mathematics 151: Calculus and Analytic Geometry I.
Mathematics 153: Calculus and Analytic Geometry III.
Mathematics 254 and 254.02: Calculus and Analytic Geometry IV.
Mathematics 660: Introductory Complex Analysis.
Mathematics 953: Topics in Topology
Mathematics 345: Foundations of Higher Mathematics
Mathematics 758: Algebraic Topology: Cohomology
Mathematics 765: Smooth Manifolds

University of Chicago, Directed Reading Program, Mentor 2004–2009

Mentored undergraduate projects on automatic groups, geometric group theory, combinatorial game theory, piecewise-linear topology, knot theory, stochastic processes.

University of Chicago, Polk Brothers Program 2005–2009

Taught middle school students in small groups and whole-classroom settings; assisted Chicago public school teachers with pedagogy and their study of mathematics.

University of Chicago, Graduate Student Lecturer 2005–2006
2008–2009

Mathematics 131–133: Elementary Functions and Calculus.
Mathematics 153: Calculus.
Mathematics 204–205: Inquiry-based learning (Moore method); analysis in $\mathbb{R}^n$.

University of Chicago, College Fellow 2004–2005

Mathematics 203–205: Analysis in $\mathbb{R}^n$.

University of Chicago, Research Experience for Undergraduates, Mentor Summer 2004
Summer 2006
Summer 2007

University of Chicago, Undergraduate Lie Theory Seminar Fall 2006

Canada/USA Mathcamp, Mentor Summer 2004
Summer 2005

Taught and mentored high school students in topics including piecewise-linear topology, quaternions, knots and links, game theory, projective geometry, p-adic numbers.

University of Chicago, Warm Up Program, Lecturer September 2005

Lectured in a mini-course reviewing point-set topology for incoming graduate students.

Harvard University, Course Assistant 2000–2003

Graded homework and ran weekly recitation sessions for multivariable calculus and linear algebra, representation theory, algebraic topology.

Awards, Fellowships, Grants

Crestron Summum Bonum Award for Excellence in Teaching March 2014

NSF Grant DUE–1245433 2013–2015

$180k for building online textbooks.

"Steal My Idea" Presentation Winner March 27, 2013

NSF Graduate Research Fellowship 2003–2008

McCormick Fellowship, University of Chicago 2003–2005

Palfrey Exhibition, Harvard University May 2003

Awarded to the most distinguished scholar in the senior class holding a stipendiary scholarship.

Wister Prize, Harvard University May 2003

Awarded to the student with the highest record in mathematics.

Robert Fletcher Rogers Prize, Harvard University May 2003

Awarded to the two students who gave the best talks at the undergraduate mathematics table.

Certificate of Distinction in Teaching, Derek Bok Center for Teaching and Learning Fall 2000

Publications

M. Davis, J. Fowler, and J.-F. Lafont. Aspherical manifolds that cannot be triangulated. *Algebr. Geom. Topol.*, 2013. Accepted for publication.

J. Fowler. Finiteness properties for some rational Poincaré duality groups. *Illinois J. Math.*, 56(2), 2012.

J. Fowler and C. Ogle. Bounded homotopy theory and the K-theory of weighted complexes. *Proc. Steklov Inst. Math.*, 275(Classical and Contemporary Mathematics in honor of Boris Delone):210–226, 2011.

C. Adams, A. Colestock, J. Fowler, W. Gillam, and E. Katerman. Cusp size bounds from singular surfaces in hyperbolic 3-manifolds. *Trans. Amer. Math. Soc.*, 358(2):727–741 (electronic), 2006.

C. Adams, A. Colestock, J. Fowler, W. Gillam, and E. Katerman. Cleanliness of geodesics in hyperbolic 3-manifolds. *Pacific J. Math.*, 213(2):201–211, 2004.

Jeremy Brandman, James Fowler, Brian Lins, Ilya Spitkovsky, and Nahum Zobin. Convex hulls of Coxeter groups. In *Function spaces, interpolation theory and related topics (Lund, 2000)*, pages 213–240. de Gruyter, Berlin, 2002.

Other Papers

J. Fowler, A. Groot, D. Pandya, and B. Snapp. The no-three-in-line problem on a torus. *ArXiv 1203.6604*, March 2012.

James A. Fowler. *Poincare duality groups and homology manifolds*. ProQuest LLC, Ann Arbor, MI, 2009. Thesis (Ph.D.)–The University of Chicago.

Talks

Reaching Online Learners: Being Smart Isn't Enough March 3–6, 2014
SXSWedu
Austin, Texas

Turbocharging Our MOOCs with Mooculus October 15–18, 2013
EDUCAUSE
Anaheim, California

Plenary lecture on Desargues' theorem — October 5, 2013
Undergraduate Mathematics Symposium
University of Illinois at Chicago

E-Learning and the MOOCS at OSU — September 26, 2013
OSURA
Columbus, Ohio

Hyperbolic knots and their volumes — September 10, 2013
OSU Quantum Topology Group

Numeric methods in topology — November 13, 2012
OSU Topology Seminar

Manifolds realizing rational homotopy types — October 20–21, 2012
AMS Special Session on Interactions Between Geometry and Topology
AMS Fall Central Sectional Meeting

Rational projective planes — March 22–24, 2012
Spring Topology and Dynamics Conference
Universidad Nacional Autonoma de México

Poincaré duality groups — December 11–17, 2011
Stratified Spaces: Joining Analysis, Topology and Geometry
Mathematisches Forschungsinstitut Oberwolfach

Remarks on rational homology manifolds — May 30–June 3, 2011
Conference in Geometric Group Theory and related topics
The Ohio State University

Weighted algebraic topology — May 16–21, 2011
Geometrical methods in high-dimensional topology
The Ohio State University

Projective Planes — April 20, 2011
OSU Radical Pi

CAT(0) square complexes — April 17, 2011
OSU Math Circle

$\mathcal{B}$-bounded finiteness — March 17–19, 2011
Spring Topology and Dynamics Conference
The University of Texas at Tyler

$\mathcal{B}$-bounded finiteness — March 31, 2011
University of Michigan

$\mathcal{B}$-bounded finiteness — February 15, 2011
OSU Topology Seminar

A first talk on surgery — October 5, 2010
OSU Topology Seminar

Rational Poincaré duality groups and controlled symmetric signature — June 10–12, 2010
Workshop in Geometric Topology
Colorado College

Rational Poincaré duality groups and controlled symmetric signature — March 18–20, 2010
Spring Topology and Dynamics Conference
Mississippi State University

Rational Poincaré duality and controlled symmetric signature — March 4, 2010
University of Notre Dame

Rational Poincaré duality and controlled symmetric signature — March 2, 2010
OSU Topology Seminar

Dividing a square into triangles of equal-area — January 13, 2010
OSU Radical Pi

Rational Poincaré duality groups — November 24, 2009
OSU Topology Seminar

Rational Poincaré duality groups — March 22–24, 2009
Ferryfest
University of Chicago

Lattices with torsion and rational homology manifolds — September 8–12, 2008
Topology of Stratified Spaces
Mathematical Sciences Research Institute

Double suspensions of homology spheres — May 20, 2008
Farb and Friends Student Seminar

The α-approximation theorem — November 4, 2008
Farb and Friends Student Seminar

Quaternionic toric varieties — April 4, 2008
Farb and Friends Student Seminar

Hyperbolization of polyhedra — March 7, 2008
Farb and Friends Student Seminar

Classifying high-dimensional manifolds — October 12, 2007
Farb and Friends Student Seminar

Wall's finiteness obstruction — September 27, 2007
Algebraic Topology Proseminar

Introduction to Surgery — May 29, 2007
Algebraic Topology Proseminar

PL-unknotting of codimension ≥ 3 knots — May 11, 2007
Farb and Friends Student Seminar

Building Aspherical Manifolds via Davis' Construction — January 25, 2007
Farb and Friends Student Seminar

Approximating L^2 invariants by finite-dimensional analogues — November 22, 2006
L^2 Seminar

Algebraic topology and distributed computing — November 2, 2006
Applied algebraic topology seminar

The h-cobordism theorem — March 7, 2005
Shmuel's Student Seminar

Wall's finiteness obstruction — November 23, 2004
Algebraic Topology Proseminar

2-adics and equidissections of squares — November 16, 2004
Pizza Seminar

Introduction to characteristic classes — October 19, 2004
Algebraic Topology Proseminar

Dissecting squares into equal-area triangles — October 15, 2002
Harvard Mathematics Table

Bounding the volume of hyperbolic 3-manifolds — October 23, 2001
Harvard Mathematics Table

Clean geodesic journeys through hyperbolic manifolds — August 3, 2001
MAA MathFest
Madison, Wisconsin

Functions growing faster than any computable function — December 12, 2000
Harvard Mathematics Table

Other conferences attended

Sage Education Days 5 — June 19–21, 2013
University of Washington

Workshop on High Dimensional Topology — December 8–9, 2012
University of Notre Dame

Singularities in Geometry and Topology — March 17–20, 2008
Courant Institute of Mathematical Sciences

AMS Special Session on Geometric Topology — March 15–16, 2008
Courant Institute of Mathematical Sciences

Topological and Geometric Rigidity — July 29–August 3, 2007
Banff International Research Station

Problems in Geometric Group Theory — April 23–27, 2007
American Institute of Mathematics

Nil Phenomena in Topology — April 14–15, 2007
Vanderbilt University

Introductory Workshop on Computational Application of Algebraic Topology — September 5–8, 2006
Mathematical Sciences Research Institute

Conference on Geometric Group Theory — July 3–14, 2006
Centre de recherches math'ematiques

Workshop on Group Actions and Rigidity — March 20–22, 2006
University of Hawaii, Manoa

Ricci Flow, 3-manifolds, and Geometry — June 20–July 15, 2005
Clay Mathematics Institute

Submanifolds, Singular Varieties and Stratified Spaces — March 13–16, 2005
Courant Institute of Mathematical Sciences

Braids, Links, and Mapping Class Groups — March 15–20, 2005
Columbia University

Conference on Low-dimensional topology — December 15–19, 2004
University of Virginia

Professional activities and service

The Ohio State University, Patent Rights Committee — 2013–Present

The Ohio State University, Data Analysis Hiring Committee — 2013–Present

The Ohio State University, Special Year in Geometry and Topology, Proceedings Co-editor — 2013–Present

The Ohio State University, STEAM Factory, Founding Director, Core Committee — 2012–Present

The Ohio State University, eLearning Committee — 2012–Present
Organized technology enhanced lectures and built mooculus.osu.edu.

The Ohio State University, Topology Seminar Co-Coordinator — 2010–Present

Ohio Board of Regents, Ohio Textbook Affordability Summit, Faculty Panelist — September 27, 2013

National Science Foundation, INGenIOuS, Faculty Panelist — May 30, 2013

The Ohio State University, Innovate Conference, MOOC Panelist — March 26, 2013

The Ohio State University, University Center for the Advancement of Teaching, Faculty Panelist — February 20, 2013

The Ohio State University, Special Year in Geometry and Topology, Graduate Student Seminar Organizer — 2010–2011

University of Chicago, Directed Reading Program, Committee Member — 2006–2009
Paired undergraduates with graduate student mentors; organized undergraduate talks; designed database-driven website to monitor students' progress.

University of Chicago, Center for Teaching and Learning, Panelist — September 2007
September 2008

Moderated a large-group discussion of teaching issues, including initial course design, midquarter course changes, assessment techniques, lecturing styles.