Benjamin McKay

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Experience

2007–present	Lecturer Above the Bar	University College Cork
2005–2007	Lecturer	University College Cork
2004–2005	Fellow	USF Center for the Study, Protection and Amelioration of Coastal Environments
2003–2005	Assistant Professor	University of South Florida (cross-appointed) Department of Mathematics and Department of Environmental Science, Policy & Geography
2001–2003	Scott Assistant Professor	University of Utah
2000–2001	Postdoctoral Fellow	University of Utah, Salt Lake City, USA
1999–2000	Postdoctoral Fellow	Max-Planck-Institut für Mathematik, Bonn, Germany
1989	Researcher	Department of Electrical Engineering, Dalhousie University, Halifax, Canada
1986	Computer programmer	Covello, Bryan and Associates, Arctic Geological Exploration, Yellowknife, Canada

Education

1999 PhD.	Mathematics	Duke University	Robert L. Bryant
1994 M.Sc.	Mathematics	University of Toronto	Richard W. Sharpe
1993 B.Sc.	Mathematics & Philosophy	University of Toronto	

Grants & Awards

2022–2026	Cost Action CA21109	European Union
2021	New Connections Grant	UCC SEFS
2015	Conference Grant	Science Foundation Ireland
2014–2015	India ISCA	Science Foundation Ireland
2013–2014	India ISCA	Science Foundation Ireland
2007–2010	Research Frontiers	Science Foundation Ireland
2007–2010	Research Frontiers	Science Foundation Ireland
2005–2006	Travel Grant	UCC Mathematics
2005–2006	Seminar Grant	UCC Mathematics
2005–2006	Book Allowance	UCC Mathematics
2005	Book Award	UCC Science Faculty
2005	Teaching Reduction	College of Arts & Sciences
2004	New Investigator	USFSP
2003–2004	Research Grant	ESP&G Department
2003–2004	Travel Award	ESP&G Department
2003–2004	Travel Award	College of Arts & Sciences
2003–2004	Research Grant	ESP&G Department
1998	Sloan Fellow	Sloan Foundation

Visiting Positions

2015	Université Nice Sophia Antipolis
2014	University of Rome Tor Vergata
2012	Université Nice Sophia Antipolis
2011	Université Nice Sophia Antipolis
2011	University of Waterloo
2011	University of Rome Tor Vergata
2011	Tata Institute of Fundamental Research
2010	Université Paris-Sud 11
2010	University of Rome Tor Vergata
2009	Universität Munster
2008	Université Paris-Sud 11
2007	Université de Toulouse
1996	Institute for Advanced Study, Princeton

Supervisor

- Postdoctoral
  - 2008–2009 Edward Lee, Jesse Ratzkin
- Ph.D.
  - 2016– Andrew Whelan
  - 2018– Amal Alofi, Eman Alruwaili, Ayman Abdulaziz Hmood Alahmade, Maram Alhudithi, Badriah Alshammari
- M.Sc.
  - 2012 –2013 Edward Hooton
  - 2006–2007 Rory Conboye
- Undergraduate summer research projects
  - 2008–2008 Alexey Pokrovskiy Jr.
  - 2007–2007 Aidan Floyd, Tara Hennessy, Mary Clare Murphy, Gerard O'Hara-Lyons
- Secondary school work experience supervision
  - 2014–2014 Rebecca Farrelly
  - 2013 –2013 Paul Mahony, Yevgeniy Merkushev, James McCloskey
- Undergraduate senior theses
  - 2022 –2023 Rose Millet, Joseph Lonergan
  - 2021 –2022 Sean Grace
  - 2020–2021 Darragh Dungan
  - 2017 –2018 Eoin O Sullivan
  - 2016 –2017 Michael Beecher
  - 2013 –2014 Catherine Costigan
  - 2012 –2013 Conor Donovan, Mark Edman
  - 2011 –2012 Eoin Healy
  - 2010 –2011 Kaya Luken
  - 2008–2009 Cormac Egan, Peter Fennell
  - 2007–2008 Jane Cahill
  - 2006–2007 Danny Gleeson
  - 2005 –2006 Ricky O'Riordan, Rory Conboye

Teaching Experience

Average teaching evaluation: 4.3/5.0

Universitá degli Studi di Roma "Tor Vergata"
Exterior Differential Systems

Université Paris-Saclay
Exterior Differential Systems

Banach Center, Warsaw
Exterior Differential Systems

University College Cork

Algebra (7×)	Complex Analysis	Graph Theory and Combinatorics	Precalculus
Analysis 3	Curves and Surfaces (3×)	Linear Algebra (15×)	Rings & Fields
Analysis 2 (4×)	Differential Geometry (4×)	Metric Spaces and Topology	Topics in Maths (2×)
Calculus (2×)	Engineering Maths (2×)	Multivariate Calculus & Finance (5×)	Topics in PDE
Calculus for Science (3×)	Euclidean Geometry (4×)		
Calculus II for Science	Game Theory	ODE (5×)	

National University of Ireland Galway
Pseudodifferential Operators

University of South Florida

Precalculus Algebra	Business Calculus (2×)	Linear Algebra	Finite Mathematics
Calculus I	Introductory Statistics (2×)	Calculus II (2×)	

University of Utah

PDE for Engineers (2×)	Business Calculus (2×)	Business Precalculus
Complex Analysis (2×)	Applied Complex Variables (2×)	

Duke University

Reform Precalculus	Traditional Calculus	Reform Calculus

Publications

Doctoral Thesis

Duality and integrable systems of pseudoholomorphic curves, Duke University, 1999.

Books

(with K. Becker, M. Becker, A. Bertram and P. Green), **Lectures on the Geometry of Strings**, American Mathematical Society, 2006.

Papers in Pure Mathematics

1. *Characteristic forms of complex Cartan geometries II*, **Advances in Mathematics**, to appear.
2. (with I. Biswas), *Locally homogeneous holomorphic geometric structures on projective varieties*, **Symmetry, Integrability, Geometric Structures and Applications**, 7 (2024), 020, 33 pages, arXiv:2302.13649.
3. (with I. Biswas and S. Dumitrescu), *Logarithmic Cartan geometry on complex manifolds*, **J. Geom. Phys.** 148 (2020), 103542, 11 pp.
4. (with I. Biswas and S. Dumitrescu), *Cartan geometries on complex manifolds of algebraic dimension zero*, **Épijournal Géom. Algébrique** 3 (2019), Art. 19, 10.
5. Introduction to exterior differential systems, **Geometry of Lagrangian Grassmannians and nonlinear PDEs**. Banach Center Publ., 117, Polish Acad. Sci. Inst. Math., Warsaw, 2019.
6. Holomorphic geometric structures on Kähler–Einstein manifolds, **Manuscripta Math.**, 153 (1-2), 2017, pp.1–34.
7. *The Hartogs extension problem for holomorphic parabolic and reductive geometries*, **Monatshefte für Mathematik**, 181 (3), 2016, 689–713.
8. (with Indranil Biswas), *Holomorphic Cartan geometries and rational curves*, **Complex Manifolds**, 3, 2016, 145–168.
9. (with Sorin Dumitrescu), *Affine connections on complex manifolds of algebraic dimension zero*, **Moscow Mathematical Journal**, 16 (4), 2016, 675–689.
10. (with Sorin Dumitrescu), *Symmetries of holomorphic geometric structures on tori*, **Complex Manifolds**, 3 (1) 2016.
11. (with Filippo Bracci and Andrea Ianuzzi), *Invariant holomorphic foliations on Kobayashi hyperbolic homogeneous manifolds*, **Proc. Amer. Math. Soc.** 144 (2016) 1619-1629, arxiv:1111.7118.
12. *Summary of progress on the Blaschke conjecture*, **Notices of the International Congress of Chinese Mathematicians** 3 (2), (2015).
13. *Complex homogeneous surfaces*, **Journal of Lie Theory** June 2015, 578–612.
14. *Exotic geometric structures on Kodaira surfaces*, **Indiana Univ. Math. J.** 62 (2), 2013, pp. 643–670.
15. (with S. Karigiannis and M. P. Tsui), *Soliton solutions for the Laplacian coflow of some G_2-structures with symmetry*, **Differential Geometry and Its Applications** 30 (4), 2012, p. 318–333, arXiv:1108.2192v1.
16. *Rigid geometry on projective varieties*, **Mathematische Zeitschrift** 272 (3), 2012, 761–791, arXiv:math/0603276.
17. *Holomorphic Cartan geometries on uniruled surfaces*, **Comptes Rendus Mathématique. Académie des Sciences. Paris**, Ser. I, 2011, arxiv:1105.4732.
18. *Holomorphic parabolic geometries and Calabi-Yau manifolds*, **Symmetry, Integrability, Geometric Structures and Applications**, 7 (2011), 090, 11 pages, arXiv:0812.1749.
19. *Characteristic forms of complex Cartan geometries*, **Advances in Geometry** 11 (1) 2011, 138–168, arXiv:0704.2555.
20. (with Indranil Biswas), *Holomorphic Cartan geometries and Calabi-Yau manifolds*, **Journal of Geometry and Physics**, 60, 2010, 610–613, arXiv:0812.3978.
21. (with Indranil Biswas), *Holomorphic Cartan geometries, Calabi-Yau manifolds and rational curves*, **Differential Geometry and its Applications** 28 (1) 2010, 102–106, arxiv.org/abs/1009.5801.
22. (with Alexey Pokrovskiy), *Locally homogeneous geometric structures on Hopf surfaces*, **Indiana University Mathematics Journal**, 59, 2010, 1491–1540, arXiv:0910.0369.
23. *Extension phenomena for holomorphic geometric structures*, **Symmetry, Integrability, Geometric Structures and Applications**, special issue "Élie Cartan and Differential Geometry" 5 (1) 2009, 1–45, arXiv:0812.2353.

24. *Almost complex rigidity of the complex projective plane*, **Proceedings of the American Mathematical Society**, 135 (2007) 597-603, math.SG/0403155.
25. *Sussmann's orbit theorem and maps*, **Differential Geometry and its Applications**, 25 (3) 2007, 277-280, math.DG/0508121.
26. *Analogues of complex geometry*, **Journal of the London Mathematical Society**, 76 (2) 2007, 16–40. math.DG/0107073.
27. *Complex nonlinear ordinary differential equations and geometry*, **International Workshop on Multi-Rate Processes & Hysteresis**, Journal of Physics Conference Series, 55, 2006, 165–170.
28. *Complete complex parabolic geometries*, **International Mathematics Research Notices**, 2006, Article ID 86937, math.DG/0409559.
29. *Lagrangian manifolds in affine symplectic geometry*, **Differential Geometry and Its Applications** 24 (6) 2006, 670-689, math.DG/0508118.
30. *Smooth projective planes*, **Geometriae Dedicata** 116 (1) 2005, 157–202, math.DG/0412500.
31. *The Blaschke conjecture and great circle fibrations of spheres*, **American Journal of Mathematics** 126 (5) 2004, 1155-1191, math.DG/0112027.
32. *Dual curves and pseudoholomorphic curves*, **Selecta Mathematica N.S.** 9 2003, 251–311, math.DG/0101017.

Papers in Mathematics Applied to Medicine

1. (with Devashish Shrivastava and Robert Roemer), *An analytical study of heat transfer in finite tissue with two blood vessels and uniform Dirichlet boundary conditions*, **Journal of Heat Transfer**, February 2005, vol. 127, #2, p. 179-188.
2. (with William P.S. McKay and Peter H. Gregson), *Transfer-function analysis in anesthesia research*, **Canadian Journal of Anaesthesia** September 1999, vol. 46, #9, pp. 813-819.
3. (with William P.S. McKay, Peter H. Gregson, and Julio Militzer), *Sternal acceleration ballistocardiography and arterial pressure wave analysis to determine stroke volume*, **Clinical and Investigative Medicine** vol. 22 #1, February, 1999, 4-14.
4. (with William P.S. McKay, Peter H. Gregson, and Terence Blanchet), *Resting muscle sounds in anaesthetised patients*, **Canadian Journal of Anaesthesia** vol. 45 (1998), no. 5, part II:A26.
5. (with William P.S. McKay, Peter H. Gregson, and Terence Blanchet), *Resting muscle sounds in anesthetized patients*, **The Canadian Journal of Physiology and Pharmacology** 1998 April 76(4): 401-6.
6. (with William P.S. McKay, Miklavs Erjavec, Peter H. Gregson, Terence Blanchet and Guy Kember), *Muscle sounds in anaesthetized patients*, (abstract) **Canadian Journal of Anaesthesia** 43 (1996), no. 5, part II:A10-A.
7. (with William P.S. McKay and Peter H. Gregson), *Sternal accelerometer ballistocardiography and arterial pressure wave analysis to determine stroke volume*, (abstract) **Canadian Journal of Anaesthesia** 41 (1994), no. 5, part II:A45A.
8. (with William P.S. McKay and Peter H. Gregson), *Direct accelerometer ballistocardiography for the detection of coronary artery disease*, (abstract) **Clinical and Investigative Medicine** 15 (1992), no. 4:A9.

Invited Talks

2025 · Levico Terme, *Complex Analysis and Geometry*
· University of Rome Tor Vergata, *Colloquium*

2024 · Bulgarian Academy of Sciences, *Calista Cost Annual Meeting*
· National University of Ireland Maynooth, *Seminar*
· University of Paris Saclay, *Grieg Meeting on Cartan Geometries*

2023 · University of Rome Tor Vergata, *Colloquium*
· Bologna, *Kick Off Meeting: Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications*
· Geilo, *Cartan geometry workshop*

2022 · Levico Terme, *Complex Analysis and Geometry*
· Université Nice–Sophia Antipolis, *Colloquium*

2020 · Universitá degli Studi di Catania, *Algebra seminar*
· Denver, Colorado, *AMS-MAA 2020 Joint Mathematics Meetings*

2019 · Kerala School of Mathematics and Tata Institute of Fundamental Research, *Complex Geometry Conference*

2018 · Université Strasbourg, *Colloquium*
· Université Paris-Sud, *Dirac Operators Seminar*
· International Centre for Theoretical Sciences, Bangalore, *Analytic and Algebraic Geometry*

2017 · Levico Terme, *Complex Analysis and Geometry*
· University College Cork, *Minimal Surfaces: Integrable Systems and Visualization*
· International Centre for Theoretical Sciences Bangalore, *Bundles Conference*

2016 · Institute for Research in Fundamental Sciences, Tehran, *Colloquium*
· Polish Academy of Sciences, *Conference on the Geometry of Lagrangian Grassmannians and Nonlinear Partial Differential Equations*
· Trinity College Dublin, *Irish Geometry Conference*

2015 · Université de Fribourg Suisse - Universität Freiburg Schweiz, *Colloquium*
· Mary Immaculate College, Limerick, Ireland, *Irish Geometry Conference*
· Université de Nice Sophia Antipolis, *Colloquium*

2014 · University of Rome Tor Vergata, *Colloquium*
· Banach Center, Warsaw, *Vector Distributions and Related Geometries*
· Tata Institute for Fundamental Research, Mumbai, *Analytic and Algebraic Geometry Related to Bundles*

2013 · Trinity College Dublin, *Colloquium*
· University College Dublin, *Colloquium*
· Castletown House, Ireland, *Irish Quantum Foundations*
· National University of Ireland Maynooth, *Irish Geometry Conference*
· Estes Park, Colorado, *New Directions in Exterior Differential Systems*
· University of Lille-1, *Colloquium*

2012 · Université Paris-Sud, *Harmonic Analysis Seminar*
· Université Nice Sophia-Antipolis, *Colloquium*
· Banff International Research Station, *Manifolds with Special Holonomy and their Calibrated Submanifolds and Connections*
· Laboratoire de Mathematiques Emile Picard, Toulouse, *Colloquium*
· University of Rome Tor Vergata, *Colloquium*

2011 · Université Nice–Sophia Antipolis, *Colloquium*
· Glucksman Art Gallery, *In Detail*
· University of Rome Tor Vergata, *Colloquium*
· Erwin Schrödinger Institute, Vienna, *Cartan Connections, Geometry of Homogeneous Spaces and Dynamics*
· University College Cork, *Nonlinear Dynamics Conference in Memory of Alexei Pokrovskii*
· National University of Ireland Galway, *Colloquium*
· University College London, *Geometry Seminar*

2010 · University of Toronto, *Seminar*
· University of Waterloo, *Geometry and Topology Seminar*
· St. Jerome's University, *Colloquium*
· McGill University/UQAM, *Joint Geometry Seminar*
· Queen's University, *Colloquium*
· University of Lille-1, *Conference on Almost Complex Geometry and Foliations*
· University of Rome Tor Vergata, *Colloquium*
· Dublin Institute of Technology, *Irish Mathematical Society Meeting*
· St. Patrick's College Drumcondra, *Irish Algebraic Geometry Conference*

- Independent University of Moscow, *Geometry of Differential Equations Seminar*

2009 · Wilfred Laurier University, *Colloquium*
- University of Rome Tor Vergata, *Colloquium*
- National University of Ireland Maynooth, *Colloquium*
- St. Francis Xavier University, *Colloquium*
- CIRM Levico Terme, Italy, *Complex Analysis and Geometry*
- University of Oslo, *25th Nordic Congress of Mathematicians*
- University of Münster, *Oberseminar*

2008 · Université Paris-Sud, *Colloquium*
- Utah State University, Mathematics and Physics Departments, *Colloquium*
- Oxford, *Colloquium*
- Institute of Technology Tralee, *Irish Geometry Meeting*
- Kyungpook National University, Taegue, Korea, *12th International Workshop on Differential Geometry*

2007 · University of Utrecht, Netherlands, *Colloquium*
- Banff International Research Station, *Focused Research Group: the Ξ-transform*
- Laboratoire de Mathematiques Emile Picard, Toulouse, *Colloquium*
- CIRM, Luminy, *Rigidity in Geometry and in Dynamics*
- Dublin City University, *Colloquium*
- Korean Institute for Advanced Study, *Colloquium*

2006 · Erwin Schrödinger Institute, Vienna, *Colloquium*
- University College Cork, *International Workshop on Multi-Rate Processes & Hysteresis*
- Trinity College Dublin, School of Mathematics, *Colloquium*
- University of Münster, *Topological Problems in Geometry*
- Keio University, Japan, *Workshop on Geometry and Dynamical Systems*

2005 · Texas A&M University, Mathematics Department, *Geometry Seminar*
- National University of Ireland Maynooth, Mathematics Department, *Departmental Seminar*
- University College Cork, Mathematics Society, *Colloquium*

2004 · University of Arizona, Mathematics Department, *Colloquium*
- University of Arizona, Mathematics Department, *Geometry Seminar*
- University of Manitoba, Mathematics Department, *Colloquium*
- Brock University, Mathematics Department, *Colloquium*
- Vrije Universiteit Amsterdam, Mathematics Department, *Colloquium*
- Dalhousie University, *Canadian Mathematical Society Summer Meeting*
- University College Cork, Mathematics Department, *Colloquium*

2003 · University of Florida, Mathematics Department, *Colloquium*
- University of Florida, Mathematics Department, *Geometry & Mathematical Physics Seminar*
- University of Texas Austin, Mathematics Department, *Geometry Seminar*
- University of South Florida Saint Petersburg, *College of Arts & Sciences Colloquium*
- Fordham University, Mathematics Department, *Colloquium*
- University of South Florida Tampa, Mathematics Department, *Colloquium*

2002 · Northeastern University, *AMS Conference: Developments and Applications in Differential Geometry*
- Utah State University, Mathematics Department, *Colloquium*

2000 · Utah State University, Mathematics and Physics Departments, *Seminar in Formal Geometry & Mathematical Physics*

Reviewer

- Acta Universitatis Matthiae Belii
- Algebraic and Geometric Topology
- Annales d'Institut Fourier
- Annales Polonici Mathematici
- Annali di Matematica Pura ed Applicata
- Annals of Global Analysis and Geometry
- Archiv der Mathematik
- Arkiv für Mathematik
- Axioms
- Bulletin de la Société Mathématique de France
- Canadian Journal of Mathematics
- Central European Journal of Mathematics
- Communications in Analysis and Geometry
- Complex Analysis and Elliptic Equations
- Complex Manifolds
- Comptes Rendus Mathematique
- Czech Science Foundation
- Differential Geometry and its Applications
- Duke Mathematics Journal
- European Journal of Mathematics
- Geometriae Dedicata
- Geometry and Functional Analysis
- Indiana Mathematics Journal
- International Journal of Mathematics
- International Mathematics Research Notices
- Irish Mathematical Society Bulletin
- Israel Journal of Mathematics
- Journal of Differential Geometry
- Journal of Geometric Analysis
- Journal of Geometry and Physics
- Journal of Lie Theory
- Journal of Mathematical Analysis and Its Applications
- Journal of the Mathematical Society of Japan
- Journal of Singularities
- Linear Algebra and its Applications
- Mathematical Proceedings of the Cambridge Philosophical Society
- Mathematical Reviews
- Mathematics
- Mathematische Nachrichten
- Mathematische Zeitschrift
- Monatshefte für Mathematik
- National Science and Engineering Research Council
- Open Mathematics
- Oxford University Press
- Proceedings of the American Mathematical Society
- Proceedings of the Edinburgh Mathematical Society
- Revista Matematica Iberoamericana
- Royal Irish Academy
- Royal Society
- SIAM Journal on Applied Algebra and Geometry
- SIGMA
- Topology Proceedings
- Transactions of the American Mathematical Society
- Universal Journal of Computational Mathematics
- USF Tampa Internal Grants Program
- Zentralblatt MATH (135 reviews)

Student Comments on Teaching

- Very thorough and enthusiastic.
- Very thorough coverage of course content
- Patient and considerate with students. Portrays a love for what he teaches.
- Treats everyone with respect.
- McKay is an excellent instructor who is always willing to assist his students in any way.
- Very thorough with ideas and concepts!
- He makes it easy to understand the work and materials for this class. I would definitely recommend for students to take the course with Professor McKay.
- Prof. McKay has a genuine interest in imparting this course's information in an enthusiastic and approachable way.
- Great way of teaching math.
- I found Mr. McKay to be well prepared for each class and extremely flexible with regards to availability for review and quizzes. Mr. McKay was very respectful to all students—only wish I could say the same for some of my classmates! The web page was an excellent idea!

- Was very good. No need to improve.
- Best maths lecturer so far!
- Brilliant lecturer.
- Very interesting course. Excellent lecturer (best maths lecturer I've had so far).
- Best of all my maths teachers!
- Very interesting lectures, made easily understandable with terms such as "kill everything beneath pivot." Thanks for your time and effort.
- He was very approachable.
- It's grand the way it is. I like the tests every couple of weeks to make sure we're keeping up with the material.
- In what way could the structure or content of this course be improved? It couldn't. It is laid out very well.
- Great material on web site.
- He chose a book that was easy to access and free. He took into account people's requests and tried to adhere to them.
- He is a really great professor.
- Dr. McKay presents course material in a very clear and concise manner. Applications to science and engineering are presented and this makes the course all the more interesting and valuable. He is the best math professor I have ever had a class with.
- Excellent teaching!!

Conference Organizing

2015 Boole Bicentennial, Cork, Ireland
2014 Workshop on Kähler Geometry and Geometric Analysis, Cork, Ireland
2012 Irish Geometry Conference, Cork, Ireland
2011 Nonlinear Dynamics Conference in Memory of Alexei Pokrovksii, Cork, Ireland
2009 Irish Geometry Conference, Cork, Ireland
2004 Joint AMS–IMS–SIAM *Conference on String Geometry*, Snowbird Resort, Utah

Service

- Ph.D. Independent Chair, UCC, 2025.
- B. Sc. Mathematical Sciences Committee, 2024-2025.
- Chair, Arts Degrees Committee, 2022–2023.
- Member, Academic Programmes and Curriculum Development Committee, 2021–2022.
- National delegate, Assembly of the International Mathematical Union, July 2018, Saõ Paulo, Brazil.
- Member, Irish Mathematical Trust, 2016–
- Member, Royal Irish Academy: Physical, Chemical and Mathematical Sciences Committee, 2015–2022
- Editor, Universal Journal of Computational Mathematics, 2013
- UCC Mathematics Circle Summer Academy (for gifted high school students), Organizer, 2006, 2007
- Colloquium director, UCC School of Mathematics, 2005–2014
- School of Maths representative, 2008–2010, Research and Graduate Studies Committee, College of Science, Engineering and Food Science, UCC
- Member, UCC Science Education, Outreach, Promotion and Public Engagement Committee, 2008–2014
- Open Day Director, School of Maths, 2005–2015
- Head, School of Maths Postgraduate and Research Funding Working Group, 2009–2011
- Head, School of Maths Student Outreach and Recruitment Committee, 2011–2014
- Founder and organizer
  - 2016–2018 Geometry Seminar, UCC
  - 2013–2014 Representation Theory Seminar, UCC
  - 2012–2013 Integrable Systems Seminar, UCC
  - 2011–2012 Riemann Surfaces Seminar, UCC
  - 2005–2007 Geometry Seminar, UCC
  - 2002–2003 QFT/String Geometry Seminar (joint with Katrin Becker), Univ. of Utah,
  - 2001–2003 Differential Geometry Seminar, Univ. of Utah
- Department of Environmental Science, Policy and Geography, University of South Florida, 2004–2005
  - Chair, Budget Committee
  - Member, Colloquium Committee
  - Member, Statistics Search Committee
- Copyeditor, Marcel Berger's *A Panoramic View of Riemannian Geometry*
- Webmaster, UCC School of Maths, 2006–2015
- Ph.D. examiner
  2015 UCC
  2013 Trinity College Dublin
  2007 Utrecht
  2006 UCC
- Mathematical Contest in Modelling, Team Advisor 2006 (Honorable Mention), 2007, 2008 (Meritorious Winner)
- Interdisciplinary Contest in Modelling, Team Advisor 2006 (Meritorious Winner)
- Superbrain Mathematics Competition, Organizing committee member 2007–present
- Chair, UCC School of Maths Linear Algebra Committee, 2010–2012
- Member, UCC School of Maths Analysis Committee, 2010–2012
- Irish Intervarsity Mathematics Competition, Organizing committee member 2009, 2013
- Member, Student Recruitment and Outreach Committee, College SEFS, 2011–2014
- Member, Quality Review Steering Committee, College of Science, Engineering and Food Science, 2011–2012
- Mentor, CK407 Science Engineering and Food Science, 2011–present
- Member, School of Maths SWOT team, 2011
- Member, College SWOT team, 2011
- Member, SEFS College Council, 2011–2012
- Acting Head, Department of Mathematics, July–September, November, December 2011, August 2012, March–April 2016.
- Co-ordinator for the courses: MS1001, MS2001, MS2002, MS2003, MS2005, MS2012, MS2013, MS3001, MS3003, MS3005, MS3006, MS3011, MS5005, MA1003, MA1008, MA1058, MA1100, MA1905, MA2006, MA2007, MA2013, MA2051, MA2054, MA2055, MA2059, MA2071, MA2200, MA3051, MA3052, MA3053, MA3054, MA3056, MA3060, MA3301, MA3901, MA4051, MA4052, MA4053, MA4058, MA4061, MA4402, MA4403.
- Developed new courses
  MA1001 Calculus for Science Part I
  MA1002 Calculus for Science Part II
  MA1003 Calculus for Science
  MS2014 Computers and Algebra
  MA4062 Topics in Modern Algebra
  MA4063 Topics in Differential Geometry
  MA4069 Topics in Mathematics
  MA6000 Introduction to Partial Differential Equations
- Glucksman Art Gallery, Boole Year Project Team member 2013–2015
- Maths Circle coordinator, 2010, 2012, 2013
- School of Maths representative, Faculty of Food Science and Technology
- Internationalization Committee member
- Consultant in mathematics education, Saylor Foundation
- Invited contributor, Flooved
- Listed in **Who's Who in the World**, 25th ed.