

Clive Newstead

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EMPLOYMENT

Carnegie Mellon University

Associate Teaching Professor, *Department of Mathematical Sciences* Jul 2025 – *present*

Assistant Teaching Professor, *Department of Mathematical Sciences* Sep 2020 – Jun 2025

Northwestern University

Lecturer, *Department of Mathematics* Sep 2018 – Aug 2020

EDUCATION

Carnegie Mellon University

PhD, Mathematical Sciences Aug 2013 – Aug 2018

Thesis: *Algebraic Models of Dependent Type Theory*, advised by Steve Awodey.

University of Cambridge, Robinson College

MMath (Part III of the Mathematical Tripos) Oct 2012 – Jun 2013

BA (Parts IA, IB & II of the Mathematical Tripos) Oct 2009 – Jun 2012

GRANTS & FELLOWSHIPS

Provost's Inclusive Teaching Fellowship (\$5,000), *Carnegie Mellon University* Jun 2021 – May 2022

Linzer Grant for Innovation in Diversity and Equity (\$6,200), *Northwestern University* Sep 2020 – Aug 2021

Joint with Eric Chang, Aaron Greicius & Maria Nastasescu.

Linzer Grant for Innovation in Diversity and Equity (\$3,800), *Northwestern University* Sep 2019 – Aug 2020

Joint with Brett Frankel and Rachael Norton.

AWARDS

Award for Excellence in Teaching, *Department of Mathematics, Northwestern University* Jun 2020

Graduate Student Teaching Award, *Carnegie Mellon University* Apr 2016

Hugh D. Young Teaching Award, *Mellon College of Science, CMU* Apr 2016

Robinson College Prize and Scholarship, *University of Cambridge* Jul 2012

Crausaz–Wordsworth Essay Prize, *University of Cambridge* Nov 2011

Adrian Knight Prize in Mathematics, *University of Cambridge* Jul 2011

TEACHING

Carnegie Mellon University

F = Fall, S = Spring, M or N = Summer

21-127	Concepts of Mathematics	N15, N17, F20, N21, F21, F22, F23, F24
21-254	Linear Algebra and Vector Calculus for Engineers	F20, F21
21-256	Multivariate Analysis	M14
21-259	Calculus in Three Dimensions	S21, S22
21-266	Vector Calculus for Computer Scientists	S23, S24, S25
	Summer Mathematics Primer: Preparation for Concepts	N22, N23, N24

Northwestern University

F = Fall, W = Winter, S = Spring, AY = F+W+S sequence

Math 211-0	Short Course in Calculus	S19
Math 230-B	Multivariable Integral Calculus for SPS	W20
Math 290-1,2,3	Linear Algebra and Multivariable Calculus sequence	AY18–19, AY19–20
Math 300-0	Foundations of Higher Mathematics	F18, W19
Math 300-CN	Foundations of Higher Mathematics for SPS	S20
Math 330-1,2,3	Abstract Algebra sequence	AY19–20
Math 330-A	Abstract Algebra for SPS	F19

TEXTBOOK

An Infinite Descent into Pure Mathematics

ISBN 978-1-950125-00-3, forthcoming. Current version accessible at <https://infinitedescent.xyz>.

RESEARCH

My research uses the tools and techniques of category theory to investigate connections between logic, algebra and topology. I am particularly interested in dependent type theory and homotopy type theory.

Publications and preprints

Polynomial pseudomonads and dependent type theory	Feb 2018
Joint work with Steve Awodey. Preprint: arXiv:1802.00997	

CONTRIBUTED TALKS AND PANELS

Joint Mathematics Meeting (panel), <i>San Francisco, CA</i>	Jan 2024
HoTT/UF 2018, <i>University of Oxford</i>	Jul 2018
Homotopy Type Theory MURI meeting, <i>Carnegie Mellon University</i>	Mar 2015, Mar 2016, Mar 2017, Mar 2018
Category Theory Octoberfest, <i>Carnegie Mellon University</i>	Oct 2017
Teaching and Learning Summit, <i>Carnegie Mellon University</i>	Oct 2016
International Category Theory Conference, <i>Dalhousie University</i>	Aug 2016
ASL Logic Colloquium, <i>University of Leeds</i>	Aug 2016
POD Network Conference, <i>San Francisco, CA</i>	Nov 2015
International Category Theory Conference, <i>University of Cambridge</i>	Aug 2014
Kan Extension Seminar at CT 2014, <i>University of Cambridge</i>	Aug 2014

SERVICE & OUTREACH

Academic Integrity Liaison, <i>Department of Mathematical Sciences, CMU</i>	Aug 2023 – <i>present</i>
University Education Council, <i>Carnegie Mellon University</i>	Aug 2023 – <i>present</i>
Faculty Senate, <i>Carnegie Mellon University</i>	May 2023 – <i>present</i>
Teaching Assistant Coordinator, <i>Department of Mathematical Sciences, CMU</i>	Mar 2021 – <i>present</i>
Academic & Community Responsibility Panels, <i>Carnegie Mellon University</i>	Oct 2020 – <i>present</i>
Formative and Summative Assessment of Teaching Working Group, <i>CMU</i>	Mar 2024 – May 2024
Hugh D. Young Award Committee, <i>Mellon College of Science, CMU</i>	Mar 2021, Mar 2022 (chair)
Northwestern Emerging Scholars Program (co-organiser), <i>Northwestern University</i>	Sep 2018 – Aug 2020
Graduate Teaching Fellow, <i>Eberly Center, CMU</i>	Jan 2015 – Aug 2018
Graduate Student Advisory Council, <i>Mellon College of Science, CMU</i>	Jun 2014 – Aug 2018
Graduate Student Teaching Award Selection Committee, <i>Carnegie Mellon University</i>	Feb 2018
Graduate Student Assembly Executive Committee, <i>Carnegie Mellon University</i>	Jun 2015 – Sep 2017
MCS College Council, <i>Mellon College of Science, CMU</i>	Aug 2015 – May 2016
Assemble Afterschool, <i>Assemble, Pittsburgh</i>	Feb 2014 – May 2015
Graduate Student Assembly department representative, <i>Carnegie Mellon University</i>	Sep 2013 – May 2015
Faculty Board, <i>Faculty of Mathematics, University of Cambridge</i>	Nov 2011 – Nov 2012
University Library Syndicate, <i>University of Cambridge</i>	Oct 2011 – Oct 2012
Teaching Committee, <i>Faculty of Mathematics, University of Cambridge</i>	Oct 2010 – Jun 2013
Robinson College Students' Association Committee, <i>Robinson College, University of Cambridge</i>	Nov 2011 – Nov 2012

PROFESSIONAL DEVELOPMENT

PITF Alumni Network, <i>Eberly Center, CMU</i>	May 2023 – <i>present</i>
Searle Teaching-As-Research (STAR) Program, <i>Searle Center, Northwestern University</i>	Jan 2019 – Jun 2019
MRC on Homotopy Type Theory, <i>American Mathematical Society, Snowbird, UT</i>	Jun 2017
Future Faculty Program, <i>Eberly Center, CMU</i>	Apr 2014 – Dec 2015