

# Clive Newstead

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## EMPLOYMENT

### Carnegie Mellon University

Assistant Teaching Professor, *Department of Mathematical Sciences* Sep 2020 – (present)

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

### Northwestern University

*AY = Fa + Wi + Sp (sequence of 3 courses)*

Math 211-0	Short Course in Calculus	Sp19
Math 230-B	Multivariable Integral Calculus for SPS	Wi20
Math 290-1,2,3	Linear Algebra and Multivariable Calculus sequence	AY2019–20, AY2018–19
Math 300-0	Foundations of Higher Mathematics	Wi19, Fa18
Math 330-CN	Foundations of Higher Mathematics for SPS	Sp20
Math 330-1,2,3	Abstract Algebra sequence	AY2019–20
Math 330-A	Abstract Algebra for SPS	Fa19

## TEXTBOOK

### An Infinite Descent into Pure Mathematics

ISBN 978-1-950125-00-3, expected 2024. 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: <a href="https://arxiv.org/abs/1802.00997">arXiv:1802.00997</a>	

## CONTRIBUTED TALKS

HoTT/UF 2018, <i>University of Oxford</i>	Jul 2018
Homotopy Type Theory MURI meeting, <i>Carnegie Mellon University</i>	Mar 2018, Mar 2017, Mar 2016, Mar 2015
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 – (present)
University Education Council, <i>Carnegie Mellon University</i>	Aug 2023 – (present)
Faculty Senate, <i>Carnegie Mellon University</i>	May 2023 – (present)
Teaching Assistant Supervisor, <i>Department of Mathematical Sciences, CMU</i>	Mar 2021 – (present)
Academic Review Board, <i>Carnegie Mellon University</i>	Oct 2020 – (present)
University Disciplinary Committee, <i>Carnegie Mellon University</i>	Oct 2020 – (present)
Hugh D. Young Award Committee, <i>Mellon College of Science, CMU</i>	Mar 2022 (chair), Mar 2021
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 board, <i>Carnegie Mellon University</i>	Jun 2015 – Sep 2017
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
RCSA Academic Affairs Officer, <i>Robinson College, University of Cambridge</i>	Nov 2011 – Nov 2012

## PROFESSIONAL DEVELOPMENT

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