

ELLEN LEHET

Lees-McRae College, Banner Elk, NC 28604

lehete@lmc.edu ◊ ellenlehet.com

AOS

Philosophy of Mathematics

AOC

Philosophy of Science, Logic, Epistemology

EMPLOYMENT

Assistant Professor of Mathematics

Lees-McRae College, Division of Natural Sciences

August 2022 –

Assistant Professor

Utah Valley University, Developmental Mathematics Department

August 2021 – June 2022

Postdoctoral Fellow

University of Notre Dame, Philosophy Department

August 2020 – May 2021

EDUCATION

University of Notre Dame

Philosophy – Ph.D.

August 2015 – May 2020

Philosophy – M.A.

August 2015 – May 2018

SUNY College at Potsdam

Mathematics – M.A.

August 2013 – May 2015

SUNY College at Potsdam

Mathematics, Philosophy – B.A.

August 2011 – May 2015

Computer Science – Minor

DISSERTATION ABSTRACT

The Explanatory Value of Category Theory: Category theory, an area of mathematics that categorizes theories in terms of objects and relations of those objects, is explanatory. This dissertation argues that the power of category theory lies in its unique structure, which produces analogies and generalizations. I first put forward an account of mathematical explanation that is informed by contemporary mathematical practice both in classroom teaching and in current research. I then discuss salient examples from contemporary mathematics to highlight how category theory produces analogies and generalizations. I conclude my project with the case study of an important result from algebraic topology (the van Kampen theorem).

Committee: Curtis Franks(advisor) ◊ Timothy Bays ◊ Patricia Blanchette ◊ Colin McLarty

Defense Date: April 6, 2020

PUBLICATIONS

“**Mathematical Explanation in Practice**” (2021). *Axiomathes*, 31 (5):553-574.

“**Reidemeister moves in Gauss diagrams**” (2021). *Involve*, 14(3): 431-338, co-written with S. Ganzell, C. Lopez, G. Magallon, and A. Thompson.

“**Impurity in Contemporary Mathematics**” (2021). *Notre Dame Journal of Formal Logic*, 62(1): 67-82

“**Induction and Explanatory Definitions in Mathematics**” (2021). *Synthese*, 198, 1161–1175.

PAPERS IN PROGRESS

“Category Theory: Structure and Explanation” (R&R)
“Understanding as the Aim of Mathematics”
“The Evolution of the Group Concept”
“A Noetic Account of Mathematical Understanding”
“Epistemic Injustice in the Mathematics Classroom”

PRESENTATIONS

“**Mathematical Explanation and Understanding: A Noetic Account**” *November 2022*
at Philosophy of Science Association meetings, with William D’Alessandro.

“**The Explanatory Potential of Definitions**” *May 2022*
at Mathematical Explanation: Ideas, Models, and Perspectives, hosted by CNRS and Université Paris 1 Panthéon-Sorbonne, invited speaker.

“**Explanatory Proof in the Developmental Maths Classroom**” *March 2022*
at Utah Association for Mathematics Teachers Education, hosted by Utah Valley University.

“**The Evolution of the Group Concept**” *January 2022*
at Inceptiones et Receptiones: Ethnological, Philological, and Historical Approaches to Logic and Mathematics (virtual), World Logic Day 2022, hosted by the Faculty of Arts of the University of San Marcos.

“**Explanatory Definitions in Mathematical Practice**” *August 2021*
at Topics in Philosophy of Mathematical Practice 2021 Mini-Conference (virtual), University of Copenhagen, invited speaker.

“**The Evolution of the Group Concept**” *July 2021*
at the Sixth International Meeting of the Association for the Philosophy of Mathematical Practice (virtual).

“**Visualizing Mathematics**” *February 2021*
for Conjunto No Vacío Semillero, Universidad de los Andes (virtual), invited speaker.

“**Mathematical Explanation as a Means to Understanding**” *December 2019*
at Explanation and Understanding within Mathematics Workshop, Vrije Universiteit Brussel.

“**Understanding as the Aim of Mathematics**” *November 2019*
at Notre Dame Philosophy Colloquium, elected graduate student speaker.

“**The Explanatory Value of Category Theory**” *November 2019*
at Midwest Philosophy of Math Workshop, University of Notre Dame.

“**Understanding as the Aim of Mathematics**” *November 2019*
at Novembertagung 2019, Institut de Recherche Mathématique Avancée, Université de Strasbourg.

“**The Explanatory Value of Category Theory**” *October 2019*
at Category Theory OctoberFest 2019, Johns Hopkins University.

“**The Explanatory Value of Category Theory**” *October 2019*
at UConn Logic Colloquium, University of Connecticut, invited speaker.

“**Impurity in Contemporary Mathematics**” *March 2019*
at Mathematics in Philosophy: Purity and Idealization, University of Notre Dame.

“**Rigor and Intuition in Topology: The Development of the Poincaré Conjecture**” *May 2018*
at Masterclass in the Philosophy of Mathematical Practice, Vrije Universiteit Brussel.

TEACHING EXPERIENCE

at Lees-McRae College
MAT 112: College Algebra *Fall 2022*
MAT 215: Statistics *Fall 2022*

at Utah Valley University
MAT 950: Foundations for Algebra *Fall 2021, Spring 2022*
MAT 1010: Intermediate Algebra *Fall 2021, Spring 2022*

at University of Notre Dame

PHIL 10101: Introduction to Philosophy	<i>Summer 2021</i>
PHIL 20656: Methods of Reasoning	<i>Spring 2021</i>
PHIL 20640: Philosophy of Mental Illness	<i>Fall 2020 & Winter 2020-21</i>
PHIL 20635: Theory of Knowledge	<i>Spring 2019</i>
TA for Jeff Speaks' PHIL 10100: Introduction to Philosophy	<i>Fall 2017</i>
TA for Curtis Franks' PHIL 31300: Formal Logic	<i>Spring 2017</i>
TA for Jeff Speaks' PHIL 10100: Introduction to Philosophy	<i>Fall 2016</i>

Outstanding Graduate Student Teacher Award*Spring 2018*

from Kaneb Center for Teaching & Learning

PROFESSIONAL DEVELOPMENT

Completed UVU Online Teaching Academy training	<i>Spring 2022</i>
OTL Learning Circle: <i>Teaching Change</i>	<i>Spring 2022</i>
Foundations of Inclusion Workshops: Positionality, Race & Ethnicity, Gender, Accessibility & Autism, Mental Health, Supporting Undocumented Students hosted by Utah Valley University, Office of Inclusion & Diversity	<i>Fall 2021–</i>
OTL Learning Circle: <i>Powerful Teaching: Unleash the Science of Learning</i>	<i>Fall 2021</i>
UC Inclusion Reading Circle: <i>Life of the Mind Interrupted</i>	<i>Fall 2021</i>

SERVICE

Departmental Service:

Contributor to Mat 980 Curriculum Development (UVU)	<i>Spring 2022</i>
Member of Mat 1020 Curriculum Subcommittee (UVU)	<i>Fall 2021–</i>
Member of Professional Development Colloquium Committee (UVU)	<i>Fall 2021–</i>
Member of Notre Dame Recruitment Planning Committee	<i>Spring 2016-Spring 2020</i>
Notre Dame Graduate Student Colloquium Co-Founder and Co-Organizer	<i>Fall 2016-Spring 2020</i>
Graduate Student Mentor, Notre Dame	<i>Fall 2018-Spring 2020</i>

Additional Service:

Member of Organizing Committee for Math Adventure Camp	<i>Spring 2022–</i>
Member of Organizing Committee for Math Girls Rock! Outreach Program	<i>Spring 2022–</i>
Member of UVU University College Advancement of Teaching Committee	<i>Fall 2021–</i>
Reviewer for zbMath	<i>Fall 2021–</i>
Referee for <i>Axiomathes</i>	<i>January 2020–</i>
Member of Organizing Committee for 2020 Midwest Philosophy of Math Workshop	<i>Fall 2020</i>
Session Chair — Eastern APA	<i>January 2019</i>
Referee for ND/NW Epistemology Conference	<i>Spring 2017</i>