

Nancy Emerson Kress

University of Colorado Boulder
School of Education

E-mail: nancy.kress@colorado.edu
Phone: 303-709-1743

EDUCATION

Ph.D., Education University of Colorado at Boulder, Boulder CO
Program Emphasis: STEM Education
Dissertation Title: Equitable Mathematics Instruction: Instructor and Student Perspectives
Dissertation Committee: David C. Webb (Chair), Melissa Braaten, David Grant, Lorrie Shepard, Terri Wilson

M.Ed., Education Antioch University New England, Keene NH
Program Emphasis: Principal Certification

M.S.T., Mathematics University of New Hampshire, Durham NH

B.A., Mathematics Colby College, Waterville ME
Minor: Environmental Studies
Teacher certification: Grades 7-12 Mathematics
Junior Year Abroad: University College Cork, Ireland
Awards: Distinction in the Major, Senior Mathematics Award, Junior Mathematics Award, Cum Laude, Dean's List every semester

RESEARCH FOCUS

- Professional learning opportunities, resources and institutional structures to support culturally sustaining learning communities in which students thrive in mathematics
- Equitable, inclusive and humanizing pedagogy and instructional practices in STEM

COMPETITIVE GRANTS AND AWARDS

Student Experience Research Network Grant September 2023 – August 2024
Requested: \$198,682 (total), \$46,880 (CU Boulder subaward) *(proposed)*
Title: Advancing Microaggression Research in Inclusive Active Learning STEM Environments Through Generative Professional Development
Roles: **Coauthor, Principal Investigator**

NSF ECR Broadening Participation Grant July 2022 – June 2025
Funded: \$1,496,216
Title: Achieving Critical Transformations in Undergraduate Programs in Mathematics (ACT UP Math)
Roles: **Coauthor, Principal Investigator**

NSF Improving Undergraduate STEM Education Grant March 2020 – August 2023
Funded: \$300,000
Title: Determining the Characteristics of Equitable Mathematics Programs (CEMP)
Roles: **Primary Proposal Author, Co-Principal Investigator**

- NSF STEM Education Postdoctoral Research Fellowship** 2022 – 2024 (*declined*)
Requested: \$299,640
Title: Studying What Helps Students Succeed and Thrive in Mathematics
Roles: **Author, Primary Investigator**
- NSF Improving Undergraduate STEM Education Grant** 2023 – 2026 (*declined*)
Requested: \$599,986
Title: Equitable Math Toolkit for College Math Instructors
Roles: **Contributing Author, Consultant**
- NSF Racial Equity in STEM Education Grant** 2022 (*declined*)
Requested: \$99,674
Title: Racial Equity: Planning for a Center for Humanizing and Inclusive Mathematics Education
 (Planning for CHIME)
Roles: **Primary Proposal Author, Principal Investigator**
- Women Investing in the School of Education Research Grant** Fall 2018 – Fall 2020
Funded: \$10,000
Title: Understanding Teaching Practices that Support Development of Robust Mathematics
 Identities Among Members of Underrepresented Groups in Mathematics
Roles: **Proposal Author, Graduate Student**
- Chancellor’s Award for STEM Education** Fall 2017 – Fall 2018
Funded: *GRA Appointment*
Title: Supporting Teaching and Learning Assistants Who Teach and Tutor in Precalculus and
 Calculus Courses
Roles: **Proposal Author, Graduate Student**
- Chancellor’s Fellowship (*GRA Appointment*)** Fall 2016 – Fall 2017

PROFESSIONAL DEVELOPMENT FACILITATOR

- Workshop: OPEN Math Project** June 2023
Title: Inclusive Active Learning in Mathematics (*accepted*)
Responsibilities: Lead and collaborate on planning, organizing and co-facilitating a four-day
 workshop for mathematics department leadership, faculty and instructors focused on the use
 of inclusive active learning in introductory mathematics courses.
Funded Projects: SEMINAL and CEMP
- Workshop: American Mathematical Association of Two-Year Colleges** Summer 2023
Working Title: Understanding Microaggressions in Undergraduate Mathematics (*anticipated*)
Responsibilities: Lead and collaborate on planning, organizing and co-facilitating a four-hour
 workshop for mathematics department leadership, faculty and instructors at two-year
 colleges focused on the impact of and responses to microaggressions in mathematics courses.
Funded Projects: SEMINAL and CEMP
- Joint Mathematics Meetings Professional Enhancement Program** January 2023
Title: Inclusive Active Learning in Undergraduate Mathematics

Responsibilities: Lead and collaborate on planning, organizing and co-facilitating a workshop for mathematics department leadership, faculty and instructors focused on the use of inclusive active learning instructional practices in undergraduate mathematics courses.

Funded Projects: SEMINAL and CEMP

Workshop: OPEN Math Project

June 2022

Title: Inclusive Active Learning in Introductory Mathematics Courses

Responsibilities: Lead and collaborate on planning, organizing and co-facilitating a four-day workshop for mathematics department leadership, faculty and instructors focused on the use of inclusive active learning in introductory mathematics courses.

Funded Projects: SEMINAL and CEMP

SEMINAL Research Project Equity Workshop

August 2020 – May 2021

Responsibilities: Collaboratively planned and facilitated a two-semester biweekly workshop for university mathematics department leadership, faculty and instructors interested in improving equity and inclusion in undergraduate mathematics.

Funded Project: SEMINAL

PROFESSIONAL EXPERIENCE

Associate Director of Secondary Field Experiences

August 2022 – present

University of Colorado at Boulder, School of Education

Joint Appointment: Elementary Education, CU Teach and Office of Teacher Education

University Supervisor

January 2022 – present

University of Colorado at Boulder, School of Education

Mentor and supervise secondary math and science student teachers

Postdoctoral Research Associate

August 2021 – August 2022

University of Colorado at Boulder, School of Education

Funded Project: Characteristics of Equitable Mathematics Programs (CEMP)

Lecturer

August 2021 – May 2022

University of Colorado at Boulder, School of Education

Equity Research Group Member

August 2020 – August 2021

University of Colorado at Boulder, Mathematics Department

Funded Project: Student Engagement in Mathematics through an Institutional Network for Active Learning (SEMINAL) project

Graduate Teaching Assistant

University of Colorado at Boulder

School of Education

Student Academic Success Center

Mathematics Department

August 2018 – May 2020

Fall 2019

Fall 2017

Graduate Research Assistant

August 2016 – August 2020

University of Colorado at Boulder, School of Education

Funding Sources: Chancellor's Award, o'DREAMS, PhET, Woot Math

High School Teacher January 1995 – June 2014
State of New Hampshire
Schools: Lebanon HS, Hanover HS, Newfound Regional HS, Tilton School, Concord HS
Courses Taught: Basic Math, Foundations of Algebra II, Algebra 1, Geometry, Integrated Algebra/Geometry II, Algebra 2, Honors Algebra 2, Advanced Math, Precalculus, Honors Precalculus, AP Calculus

Teacher Educator January 2009 – June 2009
Hanover High School, Hanover NH
Mentored Upper Valley Education Institute student teacher

INVITED PRESENTATIONS

Joint Mathematics Meeting January 2023
Closing Session: American Mathematical Society Special Session on Lessons Learned from Successful Departmental Efforts to Transform Precalculus and Calculus 1
Mathematical Association of America, American Mathematical Society, Boston Massachusetts
Title (Lead Speaker): Lessons Learned from Designing and Facilitating Equity-Focused Professional Development Sessions

Mathematics Department Colloquium October 2022
California State University at Long Beach
Title: The Role of Dialogue in Equitable Mathematics Instruction

5th National Mathematics Summit March 2022
National Organization for Student Success 2022 Conference, Atlanta Georgia
Title: Calculus Reform and Its Effects on Algebra Instruction

Engineering and Science Education Seminar March 2022
Clemson University
Title: How Do Critical Pedagogies Inform What's Needed in Equitable Mathematics Instruction?

Research on Undergraduate Mathematics Education Class Guest Speaker February 2022
University of Oklahoma
Title: What Can Culturally Sustaining Pedagogy Tell Us About Equitable Mathematics Instruction?

Mathematics Department Seminar January 2022
Florida International University
Title: Student-Focused Instruction: What, Why and How?

Seminar on Undergraduate Mathematics Education November 2021
University of Colorado at Boulder, Mathematics Department
Title: Supporting Student Success in Early Undergraduate Mathematics Courses

Mathematics Department Seminar April 2021
George Mason University
Title: Equitable Mathematics Instruction: Learning From Student Perspectives

Mentoring Session Guest Speaker

April 2020

University of Colorado Boulder, Mathematics Department
Title: Humanizing and Inclusive Mathematics Instruction

Research on Undergraduate Mathematics Education Class Guest Speaker April 2020

University of Oklahoma

Purpose: Question and Answer session focused on the paper *Construction of a Mathematics Learning Assistant's Fragile Mathematics Identity*

Mathematics Department Seminar

March 2018

University of Northern Colorado

Title: Making Active Learning Equitable: Framing the Challenge

Inclusive Teaching Seminar

March 2018

University of Michigan, Ann Arbor, Mathematics Department

Title: Inclusive Teaching in Mathematics: An Asset Oriented Approach

PUBLICATIONS (♦ indicates peer reviewed)

- ♦ Voigt, M., Smith, W. M., **Kress, N.**, Grant, D., Ström, A. (2021). Culture and Equity. In W. M. Smith, M. Voigt, A. Strom, D. C. Webb & W. G. Martin, (Eds.), *Transformational Change Efforts: Student Engagement in Mathematics through an Institutional Network for Active Learning*. St. Paul, MN: American Mathematical Society & Conference Board of the Mathematical Sciences.
 - ♦ **Kress, N. E.** (2020). Construction of a Mathematics Learning Assistant's Fragile Mathematics Identity. In Shiv Smith Karunakaran, Zackery Reed, & Abigail Higgins (Eds.), *Proceedings of the 23rd Annual Conference on Research in Undergraduate Mathematics Education*. Boston, Massachusetts.
 - ♦ **Kress, N. E.** (2019). Developing a Framework for Equitable Mathematics Instruction. In W. M. Smith, B. R. Lawler, J. F. Strayer, & L. Augustyn (Eds.), *Proceedings of the eighth annual Mathematics Teacher Education Partnership conference*. St. Louis, MO: Association of Public and Land-grant Universities.
 - ♦ **Kress, N. E.** (2018). Six Essential Questions for Problem Solving. In Mircea Pitici (Ed.), *The Best Writing on Mathematics 2018*. Princeton, NJ: Princeton University Press.
- Bush, J. B., Webb, D. C., **Kress, N. E.**, Yang, W., Perkins, K. K. (2018). *Classroom Activities for Digital Interactive Simulations to Support Realistic Mathematics Education*. Paper presented at the Sixth International Realistic Mathematics Education (RME6) Conference. Grand Cayman, Cayman Islands.
- ♦ **Kress, N. E.** (2018). Learning Assistants' Conceptualizations of Equitable Access in Active Learning Mathematics. In W. M. Smith, B. R. Lawler, J. F. Strayer, & L. Augustyn (Eds.), *Proceedings of the seventh annual Mathematics Teacher Education Partnership conference* (pp. 97-103). Washington, DC: Association of Public and Land-grant Universities.

- ♦ **Kress, N. E.** (2017). 6 Essential Questions for Problem Solving. NCTM: *Mathematics Teacher*. (Selected to be republished in *The Best Writing on Mathematics 2018*.)

ACADEMIC PRESENTATIONS

- ♦ **MATH Fest** August 2022
Title: Inclusive Early Undergraduate Mathematics: Evolution Through the Covid-19 Pandemic
- ♦ **MATH Fest** August 2022
Panelist: How Can Online Workshops OPEN Opportunities for Teaching-Focused Professional Development
- ♦ **MATH Fest** August 2022
Title (Co-Speaker): A Model of Inclusive Instruction: Students at the Center
- ♦ **Joint Mathematics Meeting** April 2022 (*online*)
Title: Humanizing Mathematics Instruction: Students' Experiences and Perspectives
- ♦ **Research on Undergraduate Mathematics Education Meeting** February 2020
Title: Construction of a Mathematics Learning Assistant's Fragile Mathematics Identity
- ♦ **Joint Mathematics Meeting** January 2020
Title: A Framework for Equitable Mathematics Instruction: Broadening What is Considered Mathematical
- ♦ **Mathematics Teacher Education Partnership Annual Meeting** June 2019
Title: Developing a Framework for Equitable Mathematics Instruction
- Progress Through Calculus and SEMINAL Projects Joint Meeting** May 2019
Panelist/Co-Presenter: Equity and Diversity in Undergraduate Mathematics
- ♦ **NCTM Research Conference** April 2019
Discussion Session: Making Sense of Identity and Sense of Belonging in Mathematics
- 10th Annual Symposium on STEM Education** October 2018
Poster Title: Experiences of Learning Assistants who Tutor in the Mathematics Academic Resource Center
- ♦ **6th International Realistic Mathematics Education Conference** September 2018
Title (Co-Speaker): Classroom Activities for Digital Interactive Simulations to Support Realistic Mathematics Education
- ♦ **Mathematics Teacher Education Partnership Annual Meeting** June 2018
Title: Learning Assistants' Conceptualizations of Equitable Access in Active Learning Mathematics
- ♦ **NCTM Research Conference** April 2018
Title: Alignment of Support Structures for Active Learning in College Calculus

Discipline Based Education Research Seminar, CU Boulder March 2018*Title:* Seminars to Support Math Learning Assistants♦ **Research on Undergraduate Mathematics Education Meeting** February 2018*Poster:* Seminars to Support Learning Assistants in Mathematics♦ **Research on Undergraduate Mathematics Education Meeting** February 2018*Poster (Co-Presenter):* Exploring Students' Reports of Exclusion in Calculus II♦ **Joint Mathematics Meeting** January 2018*Title:* Learning Assistants and Undergraduate Tutors in Active Learning Precalculus and Calculus Courses: Cultivating a Sense of Belonging Among Students from Marginalized Groups♦ **Joint Mathematics Meeting** January 2018*Title (Co-Speaker):* Exploring the inequitable/excluded experiences of students in Calculus II**9th Annual Symposium on STEM Education** October 2017*Poster:* Cultivating Critical Awareness Among Precalculus and Calculus Learning Assistants and Tutors**Educating Children of Color, Annual Summit** January 2017*Title:* Culturally Relevant Mathematics**NH Teachers of Mathematics, Spring Conference** March 2014*Title:* Essential Questions for Mathematics: Developing Confident, Knowledgeable, Creative Students♦ **NH Teachers of Mathematics, Spring Conference** April 2013*Title:* Discourse, Common Core State Standards and Habits of Mind in the Algebra Classroom**NH Association of Teachers of Mathematics in New England, Conference** March 1999*Title:* Using Writing to Increase Mathematics ComprehensionUNDERGRADUATE TEACHING - University of Colorado at Boulder*Developed full or partial curriculum for each course taught***Education and Practice** Spring and Fall 2022

EDUC 4513

Modality: Hybrid in-person and synchronous online

Elementary Student Teaching for Cultural and Linguistic Diversity 1 Fall 2022

EDUC 4710

Modality: In-person

Practicum for Bilingual/Multicultural and ELD Education Fall 2022

EDUC 4595

Modality: In-person

School and Society Fall 2018, Spring and Fall 2019, Spring 2020, Spring and Fall 2022

EDUC 3013

Modality: Spring 2022: Hybrid including in-person and synchronous online

Spring 2020: In-person followed by asynchronous online

Fall 2018, Spring 2019, Fall 2019, Fall 2022: In-person

Assessment in STEM Education (Co-taught)

Spring 2022

EDUC 4706/EDUC 5706

Modality: Hybrid including in-person, asynchronous and synchronous online

Teaching and Learning Mathematics

Fall 2021

EDUC 2130

Focus: Calculus, Trigonometry and Functions

Modality: Hybrid including in-person and synchronous online

SASC Precalculus Preparation Co-Seminar

Fall 2019

ARSC 1440

Modality: In-person

Teaching and Learning Mathematics

Summer 2018

EDUC 5830

Focus: Geometry and Measurement

Modality: Asynchronous online

Data and Models

Fall 2017

MATH 1212

Modality: In-person

SYNERGISTIC ACTIVITIES**IMPACT: Improving Mathematical Prowess and College Teaching** 2022

American Mathematical Association of Two-Year Colleges (AMATYC)

Team Member

Research on Undergraduate Mathematics Education

Fall 2020 – 2023

Special Interest Group of the Mathematical Association of America

Equity Working Group Leadership Team Member

Reviewer

American Educational Research Association

2019, 2021, 2022, 2023

ADDITIONAL EXPERIENCE

2019–2020 Member, Nederland Elementary School Accountability Committee

2013–2014 Teacher Mentor for high school LGBTQ group

2009–2012 President, Lyme Nursery School Board of Directors

2008–2009 Completed Critical Friend's Group Facilitator Training

2002–2003 Head Negotiator, Teacher's Contract, Hanover Education Association, Dresden School District

Winter 1994 Paraprofessional, Special Education Classroom, Salisbury Elementary School
1993–1994 Crew Leader, NH Student Conservation Corporation
Fall 1993 Outdoor Trip Leader, Appalachian Mountain Club
August 1992 Colby Outdoor Orientation Trip Leader

MEMBERSHIPS

American Educational Research Association
National Council of Teachers of Mathematics
Association of Supervision and Curriculum Development
Mathematical Association of America
American Mathematical Society