Elisabeth Stade

Professional Preparation

University of Colorado	Boulder CO	Mathematics	B.A., 1992
University of Colorado	Boulder CO	Mathematics	M.A., 1995
University of Colorado	Boulder CO	Civil Engineering	M.S., 2000

Appointments

Interim Faculty Director (2023 - current)	CSPB Program CS Department	CU Boulder
Associate Faculty Director (2022- 2024)	CSPB Program CS Department	CU Boulder
Lead Instructor (2018 -2022)	CSPB Program CS Department	CU Boulder
Faculty (2018 – present)	Computer Science Department	CU Boulder
Graduate Instructor (2018-2019)	Department of Theater and Dance	CU Boulder
Research Associate (2012-2021)	Center for STEM Learning	CU Boulder
Tech Application Consultant (2016)	Zotebook	TechStars Startup
Research Associate (2013-2016)	PhET Interactive Simulations	CU Boulder
Instructor (2008-2018)	Mathematics Department	CU Boulder
Consultant Boulder Valley School District (2005 – 2018)		BVSD
Adjunct Faculty (1997-1999)	Mathematics Department	University of Denver
Facilitator (1994 -1996)	NSF State Systemic Initiative	CU Boulder
Instructor (1992-1995)	Mathematics Department	CU Boulder

Selected Grants

- NSF - Award #1637076, *RIDIR: Building Cyberinfrastructure to Enable Interdisciplinary Research on the Long-Term Human Ecodynamics of the North Atlantic*
  Lead PI 2020 - 2021 $1,099,839

- NSF EFRI - Award #1637076, *Photo Origami, multi-year research and outreach grant in engineering*,
  CO-PI 2012-2016 $2,000,000

- PI, NSF EFRI REM *(Research Experience and Mentoring) supp. awards:*
  - $89,000, 2014
  - $100,000, 2015
  - $100,000, 2016

- Innovation Inclusion Grants from the CU BOLD Center for *Art is Engineering, improving retention of underrepresented groups.* 2017 - 2020

- CU Outreach Awards, 2016, 2014, 2012

- Hazel Barnes/Schwalbe Travel Awards, 2017, 2018, 2019, 2020

- A-7 Renewable Energy Outdoor Classroom, State of Colorado GOCO

funded, 2009-2011, $120,000.

- Renewable Energy Award 2009 $150,000, Center for Resource Conservation Solar

2023 Teaching Activity

Independent Study/Research Study Groups Supervised

Spring 2023, CSPB 4900 Upper Division, Undergraduate Level Independent Study (Independent Study), 1 section, 4 students

Summer 2023, CSPB 4900 Upper Division, Undergraduate Level Independent Study (Independent Study), 1 section, 1 student

Fall 2023, CSPB 4900 Upper Division, Undergraduate Level Independent Study (Independent Study), 1 section, 1 student

Courses Taught

Spring 2023, CSPB 2824 Discrete Structures (Lecture), 2 sections, 44 students

Spring 2023, CSPB 3702 Cognitive Science (Lecture), 1 section, 17 students

Summer 2023, CSPB 2824 Discrete Structures (Lecture), 3 sections, 45 students

Summer 2023, CSPB 2820 Linear Algebra with Computer Science Applications (Lecture), 3 sections, 24 students

Fall 2023, COEN 1830 Special Topics (Lecture), 1 section, 21 students

Fall 2023, CSPB 2824 Discrete Structures (Lecture), 2 sections, 61 students

Teaching and Administrative Experience
- Lead Instructor for the Applied CS Program, 2018 - Current
- Co-director of the MOSAIC Math and Art Festival at CU, April 2016
- Program Director, Photo Origami Research Experience and Mentoring 2013-15.
- Consultant, Boulder Valley School District professional development workshops, training and support, 2005-Present.
- Graduate student supervisor for "Spirit and Uses of Mathematics," 2012-2013.
- Lecturer, CU Libby RAP, "Math from the Visual Arts," 2012, 2014
- Instructor, BVSD Lifelong Learning, 2011
- Lecturer, CU Mathematics Department, 1994-1996, 2000, 2010, 2013
- Lecturer, Farrand Academic Program, University of Colorado, 2009-2010
- Program Coordinator CU Mathematics Outreach, 2007 - Current

- Wizard for ongoing CU Wizards presentation entitled "The Golden Ratio and Fibonacci Numbers"
- Adjunct Faculty, University of Denver Mathematics Department, 1997-1999
- University Facilitator for the NSF State Systemic Initiative, 1994-1996
- Instructor, University of Colorado Academic Skills Program, 1992-1994

Course Development
- CSPB 2824 - Ongoing development and expansion of RSA coding project and integrative metacognition learning strategies.
- CSPB 3702 - Cognitive Science Expansion of Course to include extension projects. Summer 2021
- CSPB 1300 - Introduction to Programming, ReDesign with Runestone FOPP interface and workshops Fall 2019
- Math 1130: Mathematics from the Visual Arts – Curriculum redesign 2012
- Math 1310: Calculus, Systems, and Modeling, 1993-1994, Redesign 2011 with Eric Stade
- Math 1110/1120: Math for Elementary Educators, active learning redesign.
- Visual-Matics, for CU Science Discovery, summer 2013
- Visual Algebra and Kinesthetic Mathematics, summer 2012, BVSD Lifelong Learning

Awards
- Chancellor's Award for STEM Education, 2012
- CU Center for STEM Learning Fellow 2011
- BVSD Superintendent's Green Award, 2011
- Lafayette Citizen of the Week, 2005 (for math outreach)
- Kettering Award for Community Action, 1998
- University Fellowship, 1996
- Achievement Rewards for College Scientists, 1993, 1994, 1995
- ARC Ramo Scholar, 1994
- Brown-Ricketts Fellowship, 1993
- Phi Beta Kappa, 1992
- Van Ek Award, 1992
- Women's Center Award, 1991

Products and Publications

Stade E, Stade E. Calculus: A Modeling and Computational Thinking Approach. (Springer, March 18, 2023) **https://link.springer.com/book/10.1007/978-3-031-24681-4**

A Lockpick's Guide to dataARC: Designing Infrastructures and Building Communities to Enable Transdisciplinary Research Opitz R, Strawhacker C, Buckland P, Cothren J, Dawson T, Dugmore A, Hambrecht G, Koster W, Lethbridge E, Mainland I, McGovern T, Newton A, Palsson G, Ryan T, Streeter R, Stade E, Szabo V, Thompson P 2021

Stade, Hensberry, McGarry, Perkins, PhET Math Simulations, including Make a Ten , Area Builder, and Proportion Playground among others, 2013-2016

Elisabeth Stade, Geometry Point, permanent outdoor mathematics exhibit in collaboration with the City of Lafayette, 2016

Elisabeth Stade, Photo Origami Design "Energy, Change, and Design," Professional Development Curriculum, CU Science Discovery, 2013

Elisabeth Stade, Snow Day Math, an iPad application for elementary math. iTunes store. 2012.

Elisabeth Stade (as "Zotebook2, EmmaWoodhouse, and Whitbysolo") Instructables, 12 web "maker" instructions and original projects in 3D printing, laser cutting, and other maker workshops. 2016

Additional Activities

Computer Science Curriculum and Online Course Design: Development of online curriculum materials for the University of Colorado online computer science degree program for Introduction to Programming and Discrete Mathematics courses. Includes instructor training, assessment, teaching, and program and policy support. (2018 – Present)

Quality Matters Certificate in Applying the Quality Matters Rubric. July 2019

K-12 Math Education Research and Special Projects with Boulder Valley School District: Activities include professional development, course design, pilot iPad program, and math learning research with K-3 with a focus on creating support structure for ESL students and interventions for students with disabilities. We partnered on the Advancing Algebra project, investigating the differences in math performance across ethnicities, piloting new targeted interventions, providing professional development, and research opportunities for CU students. (2014 – 2018)

PhET Simulations: Designed and developed the PhET Simulations, including Make a Ten, and Area Builder, targeted at K-5 students. (2013 – 2016)

Co-PI / Director of Outreach NSF EFRI Photo Origami project: As director of outreach I developed polymer and math summer camps for low income children, directed and created outreach programming in polymer science for teachers and students used by over 10,000 participants in Colorado, California, and New York State. I also created Geometry Point, a outdoor mathematics exhibit constructed in a park within a low income school neighborhood. (2012 – 2017)

Whity Solo Arts, Public Art and Artist Blacksmith - mathispattern.org

Media Links

2021 Guardian UK
https://www.theguardian.com/uk-news/gallery/2021/mar/22/finding-calm-thames-low-tide-lockdown-in-pictures

2018 Denver Post
https://www.denverpost.com/2018/05/24/us-34-reopening-guardrail-art/

2018 Northern Colorado Reporter Herald
http://www.reporterherald.com/news/larimer-county/ci_31898617/artist-beth stade-turning-big-thompson-guard-rails

2018 CDOT Seatbelt enforcement Campaign (media consultant for this campaign)
https://www.youtube.com/watch?v=xoNTLqjutb8

2017 Fort Morgan Times
http://www.fortmorgantimes.com/fort-morgan-police/ci_31150210/rural-seat-belt-enforcement-campaign-begins

2017 CDOT
https://www.codot.gov/news/2017-news/july/rural-seat-belt-enforcement-begi ns-today

2016 Boulder Camera and Hometown weekly article
http://www.coloradohometownweekly.com/news/lafayette/ci_29622804/geom etry-park-exhibit-lafayettes-romero-park-takes-shape

2016 University "Splash Page" feature and story
http://www.colorado.edu/news/features/playing-math-geometry-point-lafayett e

2016 Boulder Camera and Hometown weekly article
http://www.coloradohometownweekly.com/news/lafayette/ci_29622804/geom etry-park-exhibit-lafayettes-romero-park-takes-shape

2015 Colorado Public Radio
http://www.colorado.edu/news/features/playing-math-geometry-point-lafayett e

2015 National Public Radio and interview
http://hereandnow.wbur.org/2015/08/26/photo-origami-summer-camp 2015 Daily

Camera story for the Photo Origami Mentoring Program

http://www.dailycamera.com/boulder-county-schools/ci_28465561/local-students-partici

pate-lab-work-through-cu-boulder

2012 Daily Camera announcement of NSF Photo Origami Grant
http://www.dailycamera.com/ci_21413424/nsf-funds-photo-origami-project-at cu-boulder

Links to Apps, tutorials, and education resources:

Snow Day Math, iPad app (pilot), Elisabeth Stade (sole author).
https://itunes.apple.com/us/app/snow-day-math/id568618208?mt=8

Hensberry, Blanco, McGarry, Paul, Perkins, Stade, (2014) Area Builder Simulation – Phet Simulations, https://phet.colorado.edu/en/simulation/area-builder

Beth Stade You Tube channel – links to Snow Day app tutorials
https://www.youtube.com/channel/UCJVAANgPq4owkeCvBQtv7uw

PHet app developed with Hensberry, Blanco, McGarry,Paul, and Perkins
https://phet.colorado.edu/en/simulation/area-builder

Photo Origami Outreach programs, workshops, and resources.
http://sciencediscovery.colorado.edu/resources/teacher-resources/engineering is-everywhere/photo-origami-energy-design-and-change/

NSF REM Facebook page – Developed for all NSF REM program to share resources and photos.
https://www.facebook.com/EFRI-REM-240760542801789/?ref=bookmarks

Mathematics from the Visual Arts course page.
https://www.facebook.com/Math-from-the-Visual-Arts-280778788642908/

Whitby Solo Arts – link to my blacksmithing business. Mathispattern.org

Geometry Point – https://www.facebook.com/Geometry-Point

Samples of Original Web Content:
> http://www.instructables.com/id/DaVinci-O-Matic/
> http://www.instructables.com/id/Cardboard-IPad-Cover-With-Zotebook/ http://www.instructables.com/id/Elton-John-Glasses/

Renewable Energy Outdoor Classroom