

# Curriculum Vitae – Kelly S. Cline

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## Teaching Positions

8/08 - present	Associate Professor of Mathematics Carroll College, Department of Mathematics, Engineering, and Computer Science
9/10 - 6/11	Temporary Mathematics Lecturer University of Stirling, Department of Computing Science and Mathematics, Scotland
8/03 - 5/08	Assistant Professor of Mathematics Carroll College, Department of Mathematics, Engineering, and Computer Science
8/01 - 5/03	Astronomy Instructor Front Range Community College
7/01 & 7/02	Astronomy Instructor University of Colorado at Boulder

## Education

12/00 - 5/03	Ph.D. Dept of Astrophysical and Planetary Sciences University of Colorado at Boulder Dissertation: The Formation and Evolution of Magnetic Structures in the Solar Interior
8/98 - 12/00	M.S. Dept of Astrophysical and Planetary Science University of Colorado at Boulder
9/94 - 6/98	B.S. Physics, B.S. Mathematics, with high honors Eastern Oregon University
8/91 - 6/94	University of Alaska, Anchorage

## Publications

Cline, K., Fasteen, J., Francis, A., Sullivan, E., & Wendt, T. (submitted). Projects in Math Classes: Are They Worth the Effort? *PRIMUS*.

Cline, K., Zullo, H., Huckaby, D., Storm, C. & Stewart, A. (accepted). Classroom voting questions to stimulate discussions in precalculus. *PRIMUS*.

Sullivan, E., & Cline, K. (2015) From Data to Differential Equations. *SIMIODE*, 3-60-S-DataToDifferentialEquation, <https://www.simiode.org/resources/1387>

Zullo, H., & Cline, K. (2014). Helping Students Get the Most from the ICM in *The Interdisciplinary Contest in Modeling: Culturing Interdisciplinary Problem Solving*, Arney, Chris, and Paul J. Campbell eds., Bedford, MA, Comap Inc.

- Cline, K., Zullo, H., Duncan, J., Stewart, A., & Snipes, M. (2013). Creating discussions with classroom voting in linear algebra. *International Journal of Mathematical Education in Science and Technology*, 44(8), 1131-1142.
- Zullo, H., McGivney-Burelle, J., Cline, K., Stewart, A., Storm, C., Huckaby, D., & Melvin, T. (2013). Characteristics of Questions That Promote Rich Mathematical Discussions. *MathAMATYC Educator*, 4(3), 9-15.
- Cline, K., McGivney-Burelle, J., & Zullo, H. (2012). A Question Library for Classroom Voting. *Mathematics Teacher*, 106(3), 212-218.
- Cline, K., Parker, M., Zullo, H., & Stewart, A. (2012). Addressing common student errors with classroom voting in multivariable calculus. *PRIMUS*, 23(1), 60-75.
- Cline, K., Zullo, H., & VonEpps, L. (2012). Classroom voting patterns in differential calculus. *PRIMUS*, 22(1), 43-59.
- Cline, K., Zullo, H., (2011). Teaching Mathematics with Classroom Voting. In *Teaching Mathematics with Classroom Voting*, K. Cline and H. Zullo, eds., Washington D.C.: Mathematical Association of America.
- Zullo, H., Gniadek, K., Bruff, D., Cline, K. (2011). Key Issues in Classroom Voting. In *Teaching Mathematics with Classroom Voting*, K. Cline and H. Zullo, eds., Washington D.C.: Mathematical Association of America.
- Zullo, H., Cline, K., Parker, M., Buckmire, R., George, J., Gurski, K., Larsen, J., Mellor, B., Oberweiser, J., Peterson, D., Spindler, R., Stewart, A., Storm, C., & Spindler, R. (2011). Student surveys: What do they think? In *Teaching Mathematics with Classroom Voting*, K. Cline and H. Zullo, eds., Washington D.C.: Mathematical Association of America.
- Cline, K., H. Zullo, M. Parker, J. George, W. Harris, A. Stewart, C. Storm. (2011). Classroom Voting Questions that Provoke Teachable Moments in Differential Equations. In *Teaching Mathematics with Classroom Voting*, K. Cline and H. Zullo, eds., Washington D.C.: Mathematical Association of America.
- Cline, K. (2011) Teaching Linear Algebra with Classroom Voting: A Class Period on Linear Independence. In *Teaching Mathematics with Classroom Voting*, K. Cline and H. Zullo, eds., Washington D.C.: Mathematical Association of America.
- Cline, K., Zullo, H. (2011). Finding the Best Clicker Questions *FOCUS*, 31 #3, 20-12.
- Cline, K., & Lomen, D. (2010). Classroom Voting: Active Learning in Differential Equations. *CODEE Journal*. URL <http://www.codee.org/ref/CJ09-0158>.
- Cline, K. S. (2008). A writing-intensive statistics course. *PRIMUS*, 18(5), 399-410.
- Cline, K., Zullo, H., & Parker, M. (2007). Using classroom voting in mathematics courses. In *19th Annual International Conference on Technology in Collegiate Mathematics, Boston, MA* (pp. 35-39).
- Cline, K. S. (2007). Teaching Scientific Logic: Theories and Observations. *Astronomy Education Review*, 6(2).
- Cline, K., Zullo, H., & Parker, M. (2007). Teaching with classroom voting. *FOCUS*, 27(5), 22-23.
- Zullo, H., Parker, M., Cline, K. (2006). How to Help Your Students Get the Most Out of the MCM and ICM. *FOCUS*, 27(26).
- Cline, K. S. (2006). Sharing Teaching Ideas: Classroom Voting in Mathematics. *Mathematics Teacher*, 100(2), 100-104.
- Cattaneo, F., Brummell, N. H., & Cline, K. S. (2006). What is a flux tube? On the magnetic field topology of buoyant flux structures. *Monthly Notices of the Royal Astronomical Society*, 365(3), 727-734.

- Cline, K. S. (2005). Numerical Methods Through Open-Ended Projects. *PRIMUS*, 15(3), 274-288.
- Cline, K. S., Brummell, N. H., & Cattaneo, F. (2003). Dynamo action driven by shear and magnetic buoyancy. *The Astrophysical Journal*, 599(2), 1449.
- Cline, K. S., Brummell, N. H., & Cattaneo, F. (2003). On the formation of magnetic structures by the combined action of velocity shear and magnetic buoyancy. *The Astrophysical Journal*, 588(1), 630.
- Brummell, N., Cline, K., & Cattaneo, F. (2002). Formation of buoyant magnetic structures by a localized velocity shear. *Monthly Notices of the Royal Astronomical Society*, 329(4), L73-L76.
- Cline, K. S., Giger, K. J., & OConner, T. (1997). A Method for Taking Cross Sections of Three-Dimensional Gridded Data. *UMAP*, 211.
- Cline, K. (1997) Trebuchet: Modeling the Physics of a Medieval Siege Engine. *Eastern Oregon Science Journal* 13.
- Cline, K. (1997) Computer Modeling of Semiconductor Laser Arrays. *Eastern Oregon Science Journal* 13.
- Cline, K., Peden, N., & Pomeroy, M. (1996) Interpreting Ambient Noise Field Reflections for Submarine Detection *Eastern Oregon Science Journal* 12.

## Grants

- W. M. Keck Foundation Undergraduate Education Grant, PI. "Project InterStats: Redesigning Statistics Education with Research Methods and Active Learning," 2015-18, \$200,000 awarded.
- W. M. Keck Foundation Undergraduate Education Grant, PI. "Project InterStats: Planning Grant," 2014, \$50,000 awarded.
- National Science Foundation Grant DUE-0836775, PI (with co-PI Holly Zullo), "Project MathVote: Teaching Mathematics With Classroom Voting," 2010-2013, \$180,000 awarded.
- National Science Foundation Grant DUE-0536077, co-PI (with PI Holly Zullo and co-PI Mark Parker), "Project Math QUEST: Math Questions to Engage Students," 2006-2009, \$100,000 awarded, <http://mathquest.carroll.edu>

## Professional Presentations

- "Active Learning with Clickers and Classroom Voting, Invited Colloquium Presentation. Montana State University, Bozeman (January 2014).
- "Minicourse: Teaching with Classroom Voting and Clickers," with Lahna VonEpps. MAA-SouthWest section meeting in Socorro NM (April 2013 ).
- "Minicourse: Teaching with Classroom Voting and Clickers," with Holly Zullo. MAA Intermountain Section meeting in Rexburg ID (March 2013).
- "Life After JILA: Teaching at a Liberal Arts College," invited colloquium presentation University of Colorado at Boulder, (May 2012).
- "A Library of Clicker Questions for Classroom Voting, Invited Address. Kansas City Mathematics Technology Expo (Sept 2011).
- "Minicourse: Teaching with Clickers and Classroom Voting," with Mark Parker, Holly Zullo, and Derek Bruff (Vanderbilt University) The Mathematics Association of America - American Mathematical Society Joint Meeting, Washington, D.C. (January 5-8, 2009).
- "Minicourse: Active Learning Through Classroom Voting and Clickers," with Mark Parker and Holly Zullo The Mathematics Association of America - Pacific Northwest Section Meeting, Carroll College, Helena, Montana (June 19-21, 2008).

“Minicourse: Teaching with Clickers,” with Mark Parker, Holly Zullo, Matthew Leingang (Harvard University), and Derek Bruff (Vanderbilt University)

“Classroom Voting Comes to Mathematics,” invited participant in panel discussion, with David Lomen (University of Arizona) and Bruce Atwood (Beloit College)

“Active Learning Through Classroom Voting”

The Mathematics Association of America - American Mathematical Society Joint Meeting, San Diego, California (January 5-9, 2008).

“Classroom Voting in Linear Algebra and Differential Equations”

“Using Classroom Voting to Promote Discussions”

The Mathematics Association of America - MathFest 2007, San Jose, California (August 3-5, 2007).

“ConcepTests and Classroom Voting at Carroll College.”

Invited presentation, Department of Mathematics, University of Arizona, Tucson (April 19, 2007).

“WeBWork: An Online Homework System”

“Teaching with Classroom Voting”

The Mathematics Association of America - Pacific Northwest Section Meeting, Linfield College, McMinnville, Oregon (April 13-24, 2007).

“Teaching with Classroom Voting”

Invited colloquium, Department of Mathematics, University of Montana, Missoula (April 5, 2007).

“Worksheets and Lots of Jokes”

“Creating Discussions with Classroom Voting”

“Challenging Students with ILAPS: Interdisciplinary Lively Applied Problems”

The Mathematics Association of America - American Mathematical Society Joint Meeting, Atlanta, Georgia (January 6-9, 2005).

“Teaching Applied Mathematics Through Open-Ended Projects.”

Invited colloquium, Department of Mathematics, University of Montana, Missoula (September 23, 2004).

“Numerical Methods Through Open-Ended Projects”

“Better Than Lectures”

The Mathematics Association of America - Pacific Northwest Section Meeting, University of Alaska, Anchorage, Alaska (June 24-26, 2004).

“Papers and Peer Review in Advanced Statistics”

The Mathematics Association of America - American Mathematical Society Joint Meeting, Phoenix, Arizona (January 7-10, 2004).

“Engaging Students in the Mathematical Contest in Modeling” (with M. Parker, H. Zullo)

The Mathematics Association of America - Pacific Northwest Section Meeting, Whitman College, Walla Walla, Washington (June 19-21, 2003).

## **Courses Taught**

MA 117 Difference Equations and Linear Algebra

MA 121 Differential Calculus

MA 122 Integral Calculus

MA 131 Calculus of Single Variable Functions

MA 141 Introduction to Mathematical Modeling

MA 207 Introduction to Statistics

MA 232 Differential Equations and Linear Algebra

MA 233 Multivariable Calculus

MA 250 Mathematical Writing  
MA 306 Real Analysis  
MA 315 Probability and Statistics  
MA 334 Advanced Differential Equations & Linear Algebra  
MA 342 Applied Numerical Methods and Analysis  
MA 366 Junior Seminar  
MA 406 Complex Analysis  
MA 471 History Seminar in Mathematics  
PHYS 104/AS 102 Astronomy  
PHYS/ENGR 155 Robotics and Experimental Physics  
PHYS 205 Physics Using Calculus I: Mechanics  
PHYS 206 Physics Using Calculus II: Electricity and Magnetism  
PHYS 323 Optics and Electromagnetic Radiation  
PHYS 331 Computational Physics  
PHYS 340 Classical Mechanics  
PHYS/ENGR 342 Thermal Physics