

Karl H. Frinkle

CONTACT INFORMATION	Mathematics 112 Department of Mathematics Southeastern Oklahoma State University Durant, OK 74701 USA	<i>Phone:</i> (580) 745-2028 <i>E-mail:</i> kfrinkle@se.edu <i>Web:</i> http://homepages.se.edu/kfrinkle/
RESEARCH INTERESTS	Dynamical Systems, High Performance Computing, Parallel Programming, Integrating Technology into Mathematics	
EDUCATION	University of New Mexico, Albuquerque, NM USA Ph.D., Mathematics, July 2005, GPA 3.98 <ul style="list-style-type: none">• Dissertation: “Bose-Einstein Condensates in the Presence of an Optical Lattice and Magnetic Trap: A Galérkin Projection Approach”• Advisor: Todd Kapitula Eastern Michigan University, Ypsilanti, MI USA M.S., Applied Mathematics, April 2000 B.S., Mathematics (Minor in C.S.), April 1999	
HONORS AND AWARDS	Southeastern Oklahoma State University: <ul style="list-style-type: none">• Awarded a 2017 Presidential Partner’s Grant.• Awarded a 2016 Organized Research and Travel Grant.• Awarded the 2015-2016 Faculty Senate Recognition Award for excellence in Research.• Awarded the 2014-2015 Faculty Senate Recognition Award for excellence in Research.• Awarded a 2015 Organized Research and Travel Grant.• Awarded a 2014 Organized Research and Travel Grant.• Awarded the 2012-2013 Faculty Senate Recognition Award for excellence in Teaching.• Awarded the 2009-2010 Faculty Senate Recognition Award for excellence in Scholarship.• Awarded the 2009-2010 Faculty Senate Recognition Award for excellence in Teaching.• Awarded a 2007 Organized Research Grant.• Awarded the 2006-2007 Faculty Senate Recognition Award for excellence in Scholarship. Eastern Michigan University: <ul style="list-style-type: none">• Applied Undergraduate Mathematician of the Year Award for 1998-1999.• Awarded the Carl Erickson Award for excellence in mathematics 1998.	
ACADEMIC EXPERIENCE	Southeastern Oklahoma State University, Durant, OK USA <i>Professor</i> <i>Associate Professor</i> <i>Assistant Professor</i>	August, 2015 - present August, 2010 - 2015 August, 2005 - 2010
	Courses Taught: <ul style="list-style-type: none">• CS 3513 Numerical Analysis – Fa 2006• CIS 4973/5973 Parallel Programming – Sp 2012, Sp 2014• CIS 4973/5973 CUDA Parallel Programming – Fa 2012• CIS 4973/5973 High Performance Computing – Sp 2013	

- CS 4973 Supercomputing Architecture and Design – Fa 2014
- CS 4973 Projects in HPC – Sp 2015
- CS 4973 Parallel Programming I – Fa 2015, Fa 2017
- CS 4973 Parallel Programming II – Sp 2018
- CS 4973 HPC Data Creation – Fa 2016
- CS 4973 HPC Data Analysis – Sp 2017
- CS 4973 HPC OS and Architecture – Sp 2018
- CS 4973 HPC Mersenne Prime Project – Fa 2019
- Math 1303 Math in the Liberal Arts – Fa 2005, Fa 2006, Sp 2007, Sp 2008, Fa 2014
- Math 1513 College Algebra – Fa 2008, Fa 2011, Fa 2016, Fa 2018
- Math 1613 Trigonometry – Fa 2007, Fa 2009, Fa 2010, Fa 2011, Sp 2012, Fa 2018
- Math 2013 An Introduction to Discrete Math – Fa 2005, Fa 2015
- Math 2143 Brief Calculus with Applications – Sp 2006, Sp 2008, Sp 2009, Sp 2013, Fa 2014, Fa 2015, Fa 2017
- Math 2215 Calculus I – Fa 2005, Sp 2007, Fa 2009, Sp 2011, Fa 2016, Fa 2017
- Math 2283 Introduction to Logic – Fa 2006, Fa 2008, Fa 2010, Fa 2012, Fa 2013, Fa 2015, Sp 2016, Sp 2017, Sp 2018, Fa 2018, Sp 2019, Fa 2019
- Math 2315 Calculus II – Sp 2006, Fa 2007, Sp 2010, Sp 2017
- Math 3113 Multivariable Calculus – Sp 2006, Sp 2008
- Math 3213 Differential Equations – Sp 2007, Sp 2019
- Math 3283 Foundations of Mathematics – Sp 2010, Sp 2012, Sp 2019
- Math 4133 Linear Algebra – Sp 2009, Sp 2010, Sp 2011, Sp 2013, Sp 2014, Sp 2015, Sp 2016, Sp 2018
- Math 4213 Complex Analysis – Sp 2012, Sp 2018
- Math 4971 Putnam Practice – Fa 2008, Fa 2009, Fa 2010, Fa 2011, Fa 2012, Fa 2013, Fa 2014, Fa 2015, Fa 2018
- Math 4971 Advanced Topics in Linear Algebra – Sp 2016
- Math 4973 Chaotic Dynamical Systems – Su 2009, Su 2011
- Math 4973 Advanced Topics in Linear Algebra – Su 2010
- Math 4973 Math Modeling – Su 2007
- Math 4973 Independent Study: Numerical Analysis – Sp 2015
- Math 4973 Independent Study: Metalogic – Fa 2018
- Math 4973 Applied Mathematica Computing – Sp 2016
- Math 4982 Senior Seminar – Sp 2010, Sp 2014, Sp 2015, Sp 2016
- Phys 1114 General Physics I – Su 2012, Fa 2012, Su 2013, Fa 2013, Fa 2014
- Phys 1214 General Physics II – Sp 2013, Sp 2014, Sp 2015
- Stat 2153 Statistical Methods – Sp 2009

Online Courses Taught:

- Math 1303 Math in the Liberal Arts – Su 2006, Fa 2006, Sp 2007, Su 2007, Fa 2007, Sp 2008, Fa 2008
- Math 1513 College Algebra – Su 2008, Sp 2009, Fa 2009, Fa 2010, Sp 2011, Su 2011, Fa 2011, Sp 2012, Su 2012, Fa 2012, Sp 2013, Su 2013, Fa 2013, Sp 2014, Su 2014, Fa 2014, Sp 2015, Su 2015, Fa 2015, Sp 2016, Su 2016, Fa 2016, Sp 2017, Su 2017, Fa 2017, Sp 2018, Su 2018, Fa 2018, Sp 2019, Su 2019, Fa 2019
- Math 1613 Trigonometry – Su 2016, Su 2017, Su 2018, Su 2019
- Math 2143 Brief Calculus with Applications – Su 2016, Su 2017, Su 2018, Su 2019
- Math 3133 Geometry for Elementary Majors – Su 2006, Su 2010
- Phys 1114 General Physics I – Su 2014
- Stat 2153 Statistical Methods – Su 2015

University Committees:

- Campus Sustainability Committee (2011 - 2014, chair 2013 - 2014)

- Learning Technologies Council (2017 - 2018)
- Distance Education Council (2010 - present)
- Faculty Senate (2008 - 2011, 2016 - 2019)
- University Affairs Committee (2008-2011, chair 2008-2011)
- Personnel Policies Committee (2008 - 2009, 2017 - present)
- Budget Committee (2018 - present)
- Academic Appeals Committee (2005 - 2008, 2015 - 2018, chair 2016-2018)

Department Committees:

- Tuition Waiver Committee (2005-2014)
- Department Assessment Committee (2005-current)
- Mathematics Education Accreditation Committee (Fall 2015-Spring 2016)

Other Commitments:

- Webmaster - <http://www.se.edu/dept/math/> (2005-2016)
- Curriculum Contest Math Challenge Exam (2006 - current)
- Math Modelling Competition Coordinator (2007, 2009, 2011)
- ACM International Collegiate Programming Contest Captain (2015 - current)
- Putnam Exam Coordinator (2005 - current)

University of New Mexico, Albuquerque, NM USA

Research Assistant

June, 2003 - May, 2005

Studied the Nonlinear Schrödinger Equation in the context of Bose-Einstein Condensates in the presence of an optical lattice. Analytical and numerical results were produced. Computed and investigated numerical solutions to the Coupled Mode Equations, with a focus on finding pulse localization conditions for a many fiber array setup.

Teaching Assistant

August, 2000 - June, 2003 and June - July, 2005

Created and implemented course instruction for Differential Equations, Linear Algebra and Calculus. Duties included writing and delivering lectures, designing computer projects and calculator activities, teaching students using mathematical software in computer labs, writing and grading exams, and advising students during office hours.

- Math 316 Differential Equations, Fall 2002
- Math 314 Linear Algebra, Spring 2003
- Math 180 Calculus I, Spring 2002, Fall 2001
- Math 162 Calculus I, Summer 2001, Summer 2002
- Math 129 A Brief Survey of Math, Summer 2005

Eastern Michigan University, Ypsilanti, MI USA

Contracted Lecturer

May - July, 2000

Co-taught Math 504: Mathematics for Business, an interactive and intense summer MBA course, for Masco Corporation employees in the MBA program, with Dr. Ken Shiskowski. An online curriculum was developed to enhance the program. Duties included teaching and development of a robust curriculum, online question and answering sessions, and web design.

- Math 504 Mathematics and Statistics for MBAs, Spring 2000

Teaching Assistant

January - April, 2000

Created and implemented course instruction for a College Algebra course. Duties included writing and grading exams, and advising students during regular office hours.

- Math 105 College Algebra, Winter 2000

Lab Assistant

September - December, 1999

Responsible for upgrading and upkeep of the Mathematics departments computing lab. Numerous courses were taught there, and all computers had to be in service at all times.

Grading Assistant

August, 1997 - January, 2000

Graded homework and tests for numerous classes, including Calculus I, II and III, Differential Equations, Complex Analysis and Differential Geometry.

Math Lab Tutor

August, 1997 - August, 1999

Was an integral part of the Mathematics departments Math Tutoring Center. Tutoring and help on problems from all undergraduate courses occurred on a daily basis, from pre-algebra to analysis.

PUBLICATIONS

K. Frinkle and M. Morris

“Enabling Research into an Open Problem in Abstract Algebra through Undergraduate HPC Courses”, *Journal of Computing Sciences in Colleges*. Volume 33, Issue 4, 2018, Pages 76-83.

<https://dl.acm.org/citation.cfm?id=3199583>

H. Neeman, K. Adams, J. Alexander, D. Brunson, S. P. Calhoun, J. Deaton, F. Fondjo Fotou, K. Frinkle, Z. Gray, E. Lemley, G. Louthan, G. Monaco, M. Morris, J. Snow and B. Zimmerman

“On Fostering a Culture of Research Cyberinfrastructure Grant Proposals within a Community of Service Providers in an EPSCoR State”, In *Proceedings of the 2015 Annual Conference on Extreme Science and Engineering Discovery Environment (XSEDE '15)*. ACM, (2015), Article 19, 8 pages.

<http://dx.doi.org/10.1145/2792745.2792764>

K. H. Frinkle and M. Morris

“Developing a Hands-On Course Around Building and Testing High Performance Computing Clusters”, *Procedia Computer Science (ICCS 2015)*. Volume 51, 2015, Pages 1907-1916.

<http://dx.doi.org/10.1016/j.procs.2015.05.455>

M. Morris and K. H. Frinkle

“A Three-Semester, Interdisciplinary Approach to Parallel Programming in a Liberal Arts University Setting”, In *Proceedings of the 2014 Annual Conference of the Extreme Science and Engineering Discovery Environment (XSEDE '14)*. ACM, (2014), Article 66, 7 pages.

<http://dx.doi.org/10.1145/2616498.2616567>

K. Shiskowski and K. Frinkle

Principles of Linear Algebra With Mathematica, John Wiley & Sons, Inc., (2011)

K. Shiskowski and K. Frinkle

Principles of Linear Algebra With Maple, John Wiley & Sons, Inc., (2010)

K.H. Frinkle

“A Galërkin projection and multiple scales approach to Feshbach resonance in Bose–Einstein condensates”, *Mathematics and Computers in Simulation* 74 (2007) 126 – 134,

<http://doi:10.1016/j.matcom.2006.10.015>

CONFERENCE
PRESENTATIONS

2018 Consortium for Computing Sciences in Colleges, TCU, Ft. Worth, TX

2017 Oklahoma Supercomputing Symposium, OU, Norman, OK

2016 Oklahoma Supercomputing Symposium, OU, Norman, OK

2016 ONASHE: Oklahoma Native American Students in Higher Education, SE, Durant, OK

2015 Oklahoma Supercomputing Symposium, OU, Norman, OK

2015 XSEDE '15 – Annual Conference of the Extreme Science and Engineering Discovery Environment, St. Louis, MO

2015 ICCS 2015 – International Conference On Computational Science, Reykjavik, Iceland

2014 Oklahoma Supercomputing Symposium, OU, Norman, OK
 2014 XSEDE '14 – Annual Conference of the Extreme Science and Engineering Discovery Environment, Atlanta, GA
 2013 Project Brainstorm, SE, Durant, OK
 2013 Promoting Undergraduate Research Conference, Presbyterian Health Conference Center, Oklahoma City, OK
 2012 The Women in Science Conference, Science Museum Oklahoma, Oklahoma City, OK
 2012 Oklahoma Supercomputing Symposium, OU, Norman, OK
 2011 The Women in Science Conference, Science Museum Oklahoma, Oklahoma City, OK
 2005 The 4th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, UG, Athens, GA
 2004 Arizona Days, Los Alamos National Laboratory, Los Alamos, NM
 2002 Survey in Computation and Applied Mathematics Seminar, UNM, Albuquerque, NM
 1999 Michigan Undergraduate Mathematics Conference, Alma College, Alma, MI

CONFERENCES
 ATTENDED (NOT
 PRESENTING)

2017 NSF Campus Cyberinfrastructure and Cybersecurity Innovation for Cyberinfrastructure PI Workshop, Albuquerque, NM
 2017 CADRE Conference, OSU, Stillwater, OK
 2013 Oklahoma Supercomputing Symposium, OU, Norman, OK
 2012 NCSI Introduction to Parallel Programming & Cluster Computing , OU, Norman, OK
 2011 Oklahoma Supercomputing Symposium, OU, Norman, OK
 2011 NCSI Intermediate Parallel Programming & Cluster Computing, OU, Norman, OK
 2011 TORUS Conference, SE, Durant, OK
 2006 TORUS Conference, SE, Durant, OK
 2005 Joint AMS-MAA Meeting, Atlanta, GA
 2004 AMS Western Sectional Meeting, UNM, Albuquerque, NM
 2004 The 7th Annual New Mexico Analysis Seminar, UNM, Albuquerque, NM
 2003 AMS Joint Central and Western Sectional Meeting, UC-Boulder, Boulder, CO
 2000 Joint AMS-MAA Meeting, Washington D.C.

CONFERENCE
 COMMITTEES

2019 *Workshop on Teaching Computational Science* for ICCS 2019 (article reviewer)
 2018 *Workshop on Teaching Computational Science* for ICCS 2018 (article reviewer)
 2017 *Workshop on Teaching Computational Science* for ICCS 2017 (article reviewer)
 2016 *Workshop on Teaching Computational Science* for ICCS 2016 (article reviewer)

GRANTS

NSF Grant 1659235: CC* Network Design: Multiple Organization Regional One Oklahoma Friction Free Network (MORe OFFN) 06/15/2017–05/31/2020

COMPUTER SKILLS

- Computer Algebra Systems: Matlab, Maple, and Mathematica
- Languages: C, C++, Basic, Fortran, OpenMPI, CUDA some experience with: Assembly Language, HTML, CSS, PHP
- Applications: L^AT_EX, standard Microsoft/Windows applications
- Operating Systems: Unix/Linux, Windows, BCCD