

Murray W. Cox – Professor (Mathematics, Computer Science, Education)

Education

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| • <i>PhD, Mathematics Education</i>
Texas A&M University, Texas | May 2011 |
| • <i>Master of Arts, Mathematics/Education</i>
University California Riverside | June 2000 |
| • <i>Bachelor of Arts, Mathematics</i>
Union College, Lincoln, Nebraska | May 1991 |
| • <i>Associate in Science, Engineering</i>
Union College, Lincoln, Nebraska | May 1991 |

Experience

- Department Chair and budget control for Chemistry, Mathematics, and Physics
- Professor of mathematics
- Co-producer of online Calculus course with live on-line tutoring
- Author; Journal Articles, Encyclopedia of Special Education
- Investigator with PTLC Grant
- Co-PI on NSF Grant Application
- Establish internship connections for scholarship students
- Supervisor for engineering projects produced at the Integrated Teaching and Learning Laboratory at CU Boulder
- Course Coordinator for large multi-section courses
- Graduate Teaching Assistant seminar instructor
- Thesis committee member
- Guidance and mentoring of Teaching Assistants
- Liaison for hiring and recruiting Learning Assistants
- Instructor with GOLDSHIRT Summer Calculus program
- Instructor with the ASPIRE Summer Bridge program
- Outreach activity leader for Applied Mathematics
- Colloquium Speaker at Rochester Institute of Technology:
Mathematical Instruction and Communication
- Invited speaker for graduate TA's
- Committee Chair and member of various committees
- Creator of Brain Games outreach program to area high schools
- Graduation Speaker
- Teacher of the Year, SWAU, 2009
- Coach
- Student Association Sponsor, Senior Class Sponsor, student Advisor
- Presenter

Work History

2013 – Present

University Colorado Boulder, Boulder, Colorado

- Instructor of mathematics and Computer Science
- Graduate Level Teaching Assistant Instructor
- Course coordinator for Calculus I, Calculus II, Calculus IA, Calculus IB
- Course coordinator for Introduction to programming, C++
- Course coordinator for Discrete Structures, CS department
- Co-PI on NSF S-STEM application
- Thesis Committee Member
- Learning Assistant meeting leader
- BOLD Center liaison
- Classes Taught: Calculus I & II, Pre-Calculus, Programming C++, Discrete Structures, Introduction to Data Science with Probability and Statistics, Graduate Teaching & Learning Seminar
- First Year Seminar instructor: Boxing

2001 – 2013

Southwestern Adventist University, Keene, Texas

- Department Chair for Chemistry, Mathematics, and Physics department
- Assistant Professor of mathematics
- Various committee appointments, Advisor, Senior Sponsor, Coach
- Classes Taught: Number Theory, College Geometry, Probability Theory, Calculus I, Calculus II, Calculus III, Business Calculus, Pre-calculus, Liberal Arts Mathematics, College Algebra, Intermediate Algebra, Introduction to Algebra, Graduate Teaching Assistant Seminar

2000 – 2001

Broadview Academy, LaFox, Illinois

- Mathematics Teacher
- Head coach Gymnastics
- Weekend Campus Supervisor
- Classes Taught: Algebra I, Algebra II, Geometry, Calculus
- Junior Class Sponsor
- As. Coach Girls Basketball

1998 – 2000

University of California Riverside, Riverside, California

- Teaching Assistant
- Classes Taught: Remedial mathematics, Pre-calculus, Calculus, Number Theory
- Assistant Cheer Coach

1993 – 1998

Mile High Academy, Denver, Colorado

- Mathematics Teacher
- Head Coach Football team
- Classes Taught: Algebra I, Algebra II, Geometry, Trigonometry, Calculus, Biology, Eighth Grade Math
- Class Sponsor
- Head Coach Gymnastics

Professional Presentations and Participation:

Summer, 2021

◆ ***Instructor with Goldshirt and the BOLD center***

The GoldShirt program is a two-week residential (distance and online for some) bridge program to prepare incoming students for Fall classes and build community. My work involved demonstrating university level class work and helping to build society and familiarity amongst the students

2021

◆ ***Joined the CNAIS listserv***

Purpose: to connect with indigenous students at CU. CNAIS (Center for Native American and Indigenous Studies) is the source for events and communications within the CNAIS student body. This listserv is the root for community events and involvement in university life.

2021

◆ ***Liaison/mentor for ROTC Airforce students at CU***

Purpose: Meet with ROTC students once a week to help prepare them for upcoming duties and expectations. This is done in coordination with The Corner Boxing Gym in Boulder, Co. and Major Paul Burk, assistant professor of aerospace studies, from Airforce ROTC detachment 105.

January, 2021

◆ ***Invited speaker for the College of Engineering's Best Practices Symposium***

Invited as leader for discussion group for the College of Engineering and Applied Science's Remote and Online Lecture Best Practices Training Working Group Pedagogy Winter Symposium introduced by Keith Molenarr and headed by William Kuskin. The goal of the symposium was to discuss perspectives from Fall, 2020 and to discuss the benefit of streamlining content around project-based learning in order to increase engagement and resilience.

2020

◆ ***Invited Colloquium Speaker at Rochester Institute of Technology***

Abstract: The power of quality mathematical instruction is claimed to be of paramount importance in the education of students. However, the teaching/learning process is in fact two-sided and educators must be able to work with the student that sits before them, regardless of their foundational background. This talk is a meta study of the existing mathematical literature concerning the main barrier to academic success, where it comes from, and how to minimize its effect in the classroom.

2017 - 2020

◆ ***First Year Seminar Instructor***

Purpose: To design a university class for first-year students to demonstrate collegiate-level academic expectations that motivates and encourages stick-to-it-iveness.

2016, 2017

◆ ***Co-PI on NSF S-STEM Grant***

Purpose: To budget \$1M in the creation of a scholarship program for academically capable students interested in STEM careers, and to design appropriate success paths (interventions, internships, tools) for work-force ready graduates

2015, 2016

◆ ***Leader, ITLL Engineering Project, Boulder, Colorado***

Purpose: To fund and direct engineering students in the process (idea, write-up, creation) of invention, to bring an original idea to fruition

August 2014

- ♦**Peer Review: Reviewed Journal article**
Purpose: I reviewed an article for the Adventist Journal of Education
November 2014
- ♦**Speaker: Andrews Symposium**
Purpose: To talk to undergraduate engineering students about failure and success in the STEM fields and address their academic journey
September 2014
- ♦**Presenter: 6th Annual symposium on STEM education**
Purpose: Poster presentation to colleagues and others that were interested about a pedagogical methodology called Peer Assisted Review (PAR)
August 2013
- ♦**Participant: Faculty Teaching Excellence Program, Science Education Initiative**
Purpose: interactive workshop with discussion of peer instruction, effective use of clickers, and student engagement for deep learning in mathematics
May 2012
- ♦**Project Advisor, Texas Higher Education Coordinating Board**
January 2012
- ♦**Peer Reviewer, Journal of Adventist Education, Mathematics Issue**
June 2010
- ♦**Facilitator, Texas A&M Math Camp**
Purpose: Assessing strengths and weaknesses and teaching junior high and high school mathematics students
February 2009
- ♦**Presenter, 32nd annual meeting of the SERA**
The Southwest Educational Research Association in San Antonio, Texas
Paper Title: Behaviorist and Constructivist Context in the College-level Remedial Mathematics Classroom
2005
- ♦**Presenter/Participant, PMET workshop**, University of San Diego
Preparing Mathematicians to Educate Teachers, supported by the National Science Foundation and Texas Instruments
Purpose: to present a method of teaching proof and classroom assessment, to learn how to educate future teachers and to evaluate current teaching practices used in mathematics
2004
- ♦**Presenter/Participant, PMET workshop**, University of San Diego
Preparing Mathematicians to Educate Teachers, supported by the National Science Foundation and Texas Instruments
Purpose: to demonstrate teaching methods involving proof, to learn the application of Texas Instruments classroom systems
2004
- ♦**Participant, 'Ensuring Teacher Quality' project**, Arlington, Texas
At the Dana Center, supported by the University Texas Austin
Purpose: Preparing to educate Texas high school teachers to meet 'highly qualified' status as put forth in the No Child Left Behind campaign
2004
- ♦**Participant, 'Teachers Teaching with Technology'**, Breckenridge, Colorado
Supported by Texas Instruments, Ohio State University and Colorado State University
Purpose: Learning to use the TI series graphing calculators, the Navigator teaching system, Voyage 2000, Geometers Sketchpad and other active geometry programs with the intent of teaching pre-service teachers
2002
- ♦**Participant, 'Rocky Mountain Mathematica'**, Frisco, Colorado
Purpose: learning programming and applications of Mathematica to the classroom

- 2000
- ◆ **Facilitator, Summer Learning Institute**, Riverside California
Purpose: Teaching California high school teachers math methods
- 2000
- ◆ **Teacher, 'Partners in Academic Excellence, Bourns Engineering, and the California Alliance for Minority Participation**, Riverside, California
Purpose: Teaching gifted Pre-medicine and engineering students during the summer prior to college admission

Publications:

- ◆ T. Wong, M. Peeks, M. Cox (currently in works, 2023).
 Student performance and evaluations of teaching,
 an analysis of class size versus grades.
- ◆ D. Reinholz, M. Cox, R. Croke (2015). Supporting Graduate Student
 Instructors in Calculus, *International Journal Scholarship of Teaching and
 Learning*, Vol.9, No.2, Article 11
- ◆ Cox, M. (2014). Developmental Mathematics at the College Level. In C. R.
 Reynolds, K. J. Vannest, & E. Fletcher-Janzen (Eds.), *Encyclopedia of special
 education: A reference for the education of children, adolescents, and adults
 with disabilities and other exceptional individuals* (4th ed., vol.2, pp. 813).
 Hoboken, NJ: John Wiley and Sons.
- ◆ Cox, M. (2013, April-May). The teaching implications of gender inequality.
Journal of Adventist Education, 75, 19-24.
- ◆ Cox, M. W. (2011). *Instruction in college-level remedial mathematics: Teaching
 remedial mathematics*. Saarbrücken, Germany: Lambert Academic Publishing.

Honors/Awards:

- 2021
- ◆ ***Invited instructor for FYS in the College of Arts and Sciences***
I was extended an invitation to teach a First Year Seminar for Fall 2022.
- 2021
- ◆ ***Interviewed for Colorado Engineer Magazine***
Topic: discussion on the pros and cons of the various methodologies for instruction; online, distance, in-person. Interviewer was Nora Drewno from Mechanical Engineering, CU.
- 2021
- ◆ ***Invited speaker for student podcast***
Topic: online and distance courses versus in-person teaching; pros and cons.
- 2021
- ◆ ***Mention in article as source of motivation towards success***
<https://medium.com/swlh/from-failing-my-first-math-class-to-deans-list-ed93241d3a09> Author: Israel Miles, Software Engineer, Microsoft Quantum Systems
- 2020
- ◆ ***Invited Colloquium Speaker at RIT***
Rochester Institute of Technology (New York) and the department of mathematical sciences requested a speaking engagement. Title: Phobia and the (superfluous?) power of instruction.
- 2015
- ◆ ***Invited guest of Kappa Alpha Theta event***
Kappa Alpha Theta invites special faculty to their “Professors Tea” as a favored teacher
- 2014-2015
- ◆ ***Winner of the Presidents Teaching and Learning Collaborative (PTLC) Grant***
The PTLC is a system-wide collaborative program designed to help develop research projects on teaching and learning
- 2008 – 2009
- ◆ ***Teacher of the Year Southwestern Adventist University***
The teacher of the year is nominated by the faculty at large as well as the student body and chosen by a select committee including the university president
- 2006
- ◆ ***Nominee for the Robert Foster Cherry Award for Great Teaching***
Awarded by Baylor University

University Service:

2022 – present

◆**Member of Advisory Committee**

Purpose: To design a 3-credit key-stone course for incoming students in an Engineering Residential Community. The goal is to prepare the students for learning and succeeding at CU in their engineering careers. This committee was put in place by Keith Molenaar, Rhonda Hoenigman, and Scot Ray Douglass.

July 2015, 2018 - 2023

◆**Lead Instructor for GOLDSHIRT Calculus Program**

Purpose: The GoldShirt program is a two-week residential bridge program to prepare incoming students for Fall classes and build community. My work involved demonstrating university level class work and helping to build society and familiarity amongst the students

2021

◆**Member of ABET committee**

Purpose: to prepare for the 2023 department accreditation. Headed by Ken Anderson and Lijun Chen.

2021

◆**Member of ad hoc committee: Calculus Instruction in the College of Engineering**

Organized by Doug Smith and Rhonda Hoenigman: Purpose: provide foundational ideas concerning the structure of Calculus instruction and how it impacts engineering students.

2021

◆**Panelist for Teaching Symposium, CU Boulder**

Purpose: Presenter and discussion leader concerning student engagement with a focus on encouraging student engagement on Zoom.

2018

◆**Instructor for APPM 7440: Teaching and Learning Graduate Seminar**

Purpose: Educating graduate teaching assistants about various teaching methods and applied mathematics procedures for the department

2015-2020

◆**First-Year Seminar Instructor**

Purpose: Selected instructors design classes (of any topic) to interest incoming freshmen, motivate them to learn, and demonstrate university-level expectations

2015-2018

◆**Teaching Assistant/Learning Assistant meeting organizer**

Purpose: Organization of TA/LA meetings for large undergraduate classes; Observing recitations and reviewing teaching class operations with TA's

Spring, 2016, 2019

◆**Course Coordinator for APPM 1345, Calculus IB**

Responsibilities: Organize the curriculum and the assistants for APPM 1340, prepare the syllabus, write exams, and conduct the grading process for all sections

Fall 2015, 2016, 2018

◆**Course Coordinator for APPM 1340, Calculus IA**

Responsibilities: Organize the curriculum and the assistants for APPM 1340, prepare the syllabus, write exams, and conduct the grading process for all sections

September 2016

◆***Project Advisor for COEN 1400, Idea Forge***

Purpose: Working with group of three students to help them invent an electronic and mechanical device for a Boulder business. I advised the students in the process of draw-up, coding, and mechanically designing the product

2016 - 2018

◆***Evaluator for TA Duties***

Purpose: To observe and critique TA's at the beginning of the year in order to help them set a standard of work quality

September 2016

◆***Speaker for TA panel discussion***

Purpose: To answer questions for TA's and advise them on future career directions

October 2016

◆***Liaison for LA hiring process***

Purpose: To meet with candidates for the position of LA in the applied mathematics department, to answer questions concerning the position, and to encourage highly qualified candidates to apply for positions

January 2015

◆***Project Advisor for COEN 1400, Idea Forge***

Purpose: Working with group of four students I invented a mechanical device for a local Boulder gym and supervised the students to draw-up, code, and mechanically design the product

September 2015

◆***Teaching Assistant Evaluator***

Purpose: I observed a number of TA's, evaluated them, and set up meetings with them to discuss appropriate teaching and learning methods

January - May 2015

◆***Peer Assisted Reflection Participant***

Purpose: I attended bi-monthly meetings with fellow instructors and TA's as part of a PTLC grant to help guide the TA's toward creating recitations that promoted student reflection and peer assistance

Summer, 2015

◆***Co-producer of on-line Calculus II course***

Purpose: I helped create and teach the first CU Boulder online Calculus II course

Fall Semester, 2015

◆***Instructor with BBA and APPM for online Calculus***

Purpose: Instructing classes that will be captured and added as library courses for future students wanting to take classes out of sync with the semester

April 2015

◆***Liaison for Admitted Student Day Fair***

Purpose: Answer questions concerning Applied Mathematics for students and parents

July 2015, 2018

◆***Lead Instructor for ASPIRE Program***

Purpose: ASPIRE (Achieving Student Performance, Interest and Retention in Engineering) Summer Bridge Program is an intensive 8-day residential program for incoming engineering students to work on a team project, study Calculus, and build spatial visualization skills

November 2014

◆**Speaker at the Andrews Symposium**

Purpose: The Andrews Symposium is designed to help STEM students with their academic journey

September 2014

◆**Presenter at the 6th Annual Symposium on STEM Education**

Purpose: Presenting and answering questions related to Peer Assisted Reflection as used in university level Calculus courses. Presentation entitled, “Using Reflection to improve understanding in APPM 1350 and 1360, Calculus for Engineers”

2014-2015

◆**Researcher in Peer Assisted Reflection (PAR)**

Goal: to investigate student learning in the art of mathematical thinking with the aid from the PTLC Grant

Spring 2014, 2015

◆**Course Coordinator for APPM1350, Calculus I**

Responsibilities: Organize the instructors and TA’s for APPM 1350, prepare the syllabus, write exams, and conduct the grading process for all sections

Fall 2015, 2018

◆**Course Coordinator for APPM 1340, Calculus I with Algebra, Part I**

Responsibilities: Organize APPM 1340 for online content and presentation, prepare the syllabus, write exams, and conduct the grading process

Spring 2016, 2019

◆**Course Coordinator for APPM 1345, Calculus with Algebra, Part II**

Responsibilities: Organize APPM 1345 for online presentation, prepare the syllabus, write exams, and conduct the grading process

Fall 2014

◆**Course Coordinator for APPM 1360, Calculus II**

Responsibilities: Organize the instructors and TA’s for APPM 1360, prepare the syllabus, write exams, and conduct the grading process for all sections

Spring and Fall 2014

◆**Member for CU Mathematics Roundtable**

Purpose: discuss the most recent changes to undergraduate engineering math requirements, review assessments, consider the impacts of ALEKS, and examine the effect of the Pre-Engineering and GoldShirt programs on course needs.

February 2014

◆**Outreach Facilitator for CU-STEM visit**

Purpose: Introduce Denver high school students to applied mathematics and STEM

2013 – 2014

◆**Thesis Advisor**

Committee member for Brit Schneiders thesis presentation

2011 – 2013

◆**Chair, Mathematics and Physical Sciences Department**

Duties: Oversee department, maintain budget, recommend appointments, liaison to the administration, establish/modify operational policies and procedures based on analysis of operations, Promote/Represent University at campus and community events

2001 – 2013

◆**Director, Southwestern University Mathematics Tutoring Program**

Duties: Hire tutors, organize and maintain working schedule for tutors, educate tutors in proper teaching methods

2011 – 2012

◆**Sponsor, Student Association**

Duties: Advise SA leaders on procedure, balance budget, supervise events

2011

◆**Cooperating Professor, Dual credit Calculus Program, Arlington, Texas**

Duties: write syllabus, monitor progress, teach various lessons, and oversee general organization for high school dual-credit Calculus class

2009

◆**Substitute Lecturer, Statistics**

Duties: Cover statistics classes for traveling professor

2002 – 2013

◆**Mentor for new/part-time mathematics faculty**

Duties: Introduce new faculty, part-time faculty, and visiting professors to the chemistry, physics, and mathematics department policies and procedures

Committee Work:

2021

◆**Member of ad hoc committee: Calculus Instruction in the College of Engineering**

Organized by Doug Smith and Rhonda Hoenigman: Purpose: provide foundational ideas concerning the structure of Calculus instruction and how it impacts engineering students.

2020, 2021

◆**ABET Committee**

Purpose: To oversee all issues related to ABET accreditation.

2019, 2020

◆**Instructor Search Committee, CU Boulder**

Purpose: To interview and provide feedback on instructor candidates.

2019 - Present

◆**Committee for Undergraduate Course Support**

Purpose: To interview and hire course support and to investigate and advise on logistics for course support: LA's, TA's, CA's, and GSS's

2019, 2020

◆**Curriculum Committee for Computer Science, CU Boulder**

Purpose: To handle all policy questions relating to undergraduate study. This includes the definition of course content for undergraduate level courses, oversight of and change to the undergraduate curriculum, advising of undergraduate students, and the recommendation of candidates for undergraduate fellowships and scholarships.

2017, 2018

◆**First-Year Seminar Committee**

Purpose: To discuss the organization and on-going logistics of first-year seminars and create syllabi for future seminars

2017

◆**Foundations of Excellence, Transitions Committee**

Purpose: Investigate current internal data and external research concerning how to best smooth out the transition between high school and university life in an attempt to create higher retention levels

2016 – 2017

◆**Co-PI on NSF Grant Application committee**

Purpose: To distribute \$1 million in scholarship monies in order to increase the recruitment, retention, student success, and graduation (including student transfer) of low- income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, graduate degrees in STEM and enter the STEM workforce or graduate programs in STEM

2014 – 2016

◆**Math Experience Sub-Committee**

Purpose: Address the undergraduate concerns about their applied mathematics experience, form focus group protocol, questions, and facilitation

2014 – 2019

◆**Member, CU Mathematics Roundtable**

Purpose: discuss the most recent changes to undergraduate engineering math requirements, review assessments, consider the impacts of ALEKS, and examine the effect of the Pre-Engineering and GoldShirt programs on course needs

2014

◆**Member, Thesis Committee**

Advisor for Brita Schneiders, MS August 2014, Department of Applied Mathematics. Thesis defense: July 15, 2014. Thesis title: The Effectiveness of Calculus Workgroup on Student Performance in Calculus: A Mixed-Methods Approach

2011 – 2013

◆**Board Member, Kauffman Leadership Academy**

Duties: Advise on and guide decisions concerning the charter school KLA

2001 – 2013

◆**Member, General Education Committee, SWAU**

Duties: determine the standards for a general education degree; ensure these standards are meeting student needs and university benchmarks

2002 – 2012

◆**Member, Admissions Committee**

Purpose: the Admissions Committee has the responsibility for admission and readmission to the University for qualified applicants

Duties: review/update mathematics admission criteria, determine student eligibility, design and administer mathematics placement test

2003 – 2013

◆**Chair, Brain Games Committee**

Purpose: recruitment; design and implement an academically focused event catered to the top 5 math and science students from high schools around the U.S.

2007 – 2013

◆ ***Member, The Quality Enhancement Plan Committee***

Purpose: providing training for faculty in the goals and procedures of Southwestern's QEP, as monitored by the Southern Association of Colleges and Schools (SACS), organize and direct seminars on critical thinking, writing, technology, and library research resources

2009 – 2013

◆ ***Member, Athletic Council***

Purpose: creating and enforcing student athlete academic and behavioral policy

2008 – 2013

◆ ***Member, Discipline Committee***

Duties: meet and deliberate on an as needed basis concerning disciplinary actions

2010

◆ ***Chair, Grievance Committee***

Duties: Hear and decide on case involving a student/faculty grievance.

2011 – 2013

◆ ***Member, Academic Policies Committee***

Purpose: responsible for graduate academic policies and curricula, create and enforce policy, hear student appeals related to their graduate program

Experience and Special Skills:

- ◆ Boxing coach for CU students and Denver Police Department
- ◆ Designed mathematics aptitude test for chemistry department
- ◆ Designed mathematics aptitude test for nursing department
- ◆ Created math placement test for Southwestern Adventist University
- ◆ Familiarity with Python, C++
- ◆ Exposure to MAPLE placement testing, Mathematica, Mathcad.
- ◆ Daily/weekly work with LaTeX and educational technology including course management systems Canvas, D2L, Gradescope, Moodle, Slack, Piazza
- ◆ Created new curriculum for remedial mathematics and college algebra at South Western Adventist University