To support the participation of teachers across Colorado and Wyoming, summer courses are offered in a hybrid format, allowing both face-to-face and video conferencing delivery. Students use synchronous and asynchronous course management software in the hybrid courses and the online courses offered during the school year.

Generate a body of research and evaluation that documents effective practices in developing master teachers and teacher-leaders

Virtual Master’s Degree Program (MP)

The goal of the Master’s Program is to develop a highly qualified, culturally competent, pedagogically effective cadre of mathematics teachers who are equipped to improve student achievement in mathematics. The Math TLC is creating a rigorous master's program that includes courses at UNC and UW. The program will be sustained beyond the life of the grant through the establishment of an affiliation agreement. We are committed to ongoing development and research of the delivery methods for the program, including a determination of optimal online software platform, online teaching strategies for mathematics, and model course characteristics for the master’s program, with a basis in current research.

The MP is offered to secondary mathematics teachers who have taught at least two years. It is a 2-year, 30-credit program consists of online and face-to-face courses. Of the 30 credits, 18 are mathematics courses and 12 are mathematics education courses. Mathematics education courses are paired with their mathematics counterparts so that teachers integrate their knowledge of mathematics content and pedagogy. For example, Modern Geometry, taught during the summer, is followed by Teaching Geometry during the school year.

Research Goal 1. Advance knowledge about the content and impact of professional development of mathematics teachers by researching the mathematical understandings, pedagogical content knowledge, and teaching practices among Math TLC participants (teachers, teacher-leaders, and university teacher-educators).

Question 1.1. Teacher Change. What mathematical understandings, pedagogical content knowledge, and teaching practices do teachers, teacher-leaders, and teacher-educators have at the start and end of each year of participation in the Math TLC project?

Question 1.2. Instructional Content. What mathematical and pedagogical content knowledge components are addressed in Math TLC courses and activities?

Question 1.3. Student Achievement. What is the relationship among Math TLC participants' activities, teaching contexts, and student achievement?

Question 1.4. Instructional Format. How do changes in mathematical understanding, PCK, practices, and K-12 student achievement correlate with aspects of Math TLC participation?

Research Goal 2. Advance knowledge of teacher leadership development by researching, through a design experiment, the Math TLC leadership development model. The goal of this model is to develop teacher-leaders who can facilitate professional development of other teachers in ways...