

Elementary STEM Endorsement Requirements

EDUC 5750	Energy in STEM for Elementary Teachers	3 Credits
<p>This course provides participants with a deep and useful understanding of energy and the nature of how students use concepts of energy to make sense of phenomena across life, earth, and physical science. This understanding enhances teacher insights into: 1) how matter and energy interact, 2) the relationships of energy to forces and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about energy. The course also connects knowledge of energy concepts to practices in technology, engineering and mathematics.</p>		
EDUC 5760	Force in STEM for Elementary Teachers	3 credits
<p>Participants will use concepts of force in a series of learning experiences that will help them understand force and the nature of how their own students may use concepts of force to make sense of phenomena across life, earth, and physical science. This understanding enhances teacher insights into: 1) how force, matter and energy interact, 2) the relationship of force to energy and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about force. The course also connects knowledge of concepts of force to practices in technology, engineering and mathematics.</p>		
EDUC 5770	Matter in STEM for Elementary Teachers	3 Credits
<p>Participants in this course will develop a deep and useful understanding of matter and concepts of matter are used to make sense of phenomena across life, earth, and physical science. This understanding will enhance participant insights into: 1) how matter and energy interact, 2) the relationships of matter to forces and interactions within fields, and 3) pedagogical content knowledge around teaching and learning about matter. The course also connects knowledge of concepts of matter to practices in technology, engineering and mathematics.</p>		
EDUC 5780	Nature of Science and Engineering	3 Credits
<p>In this course participants will experience introductory explorations of the nature of science using science and engineering principles, practices, and processes. Applications to Science, Technology, Engineering and Mathematics will be explored using learner-based pedagogy. Participants will develop teaching practices to assist them in educating K-6 students in selected Earth and Life Science Standards.</p>		
EDUC 5790	STEM Practices with a Focus on Technology and Problem-Based Learning	3 Credits
<p>The STEM Practices course will engage participants in developing meaningful understandings of problem-based approaches to teaching, learning, and the integration of STEM practices across the curriculum using appropriate technology. Participants will demonstrate their skills through the development and creation of a problem-based, hands-on experience.</p>		
EDUC 5540	Teaching K-8 Data Analysis and Problem Solving	3 Credits
<p>Using skills and strategies applied in mathematical contexts participants will learn to think, work with others, present solutions orally to the whole class, and write up detailed solutions. This course will also provide practicing teachers a deeper understanding of probability and data representation and analysis. Special attention in this course will be given to children's typical error patterns, problem solving strategies, interpreting and assessing students' work and learning, and integration of the NCTM process standards.</p>		