

STEM Education (STEM)

STEM 6310 Introduction to STEM Education **3 SCH (3-0)**

This course provides an introduction to STEM Education. Students will explore foundational aspects of STEM education through the literature, recent national reports, discussion and practice. Topics may include rationales for STEM Education, historical perspectives, contributors and leaders, core theories and models, and challenges to STEM Education.

STEM 6312 Theoretical Foundations STEM **3 SCH (3-0)**

An introduction to the major learning theories and research underpinning STEM Education. Students will learn to craft learning experiences based on these theories to help students meet state and national mandated standards. This course culminate with students designing a research study based in part on learning theory(ies).

STEM 6314 Special Topics in STEM Educ **3 SCH (3-0)**

Courses will concentrate on themes not present in the current STEM curriculum. May be repeated for a maximum of 6 semester hours when topic changes.

STEM 6316 Instructional Design STEM Educ **3 SCH (3-0)**

Using the Dick and Carey ISD framework, students will explore the instructional systems development (ISD) process, from analysis through evaluation, and engage in authentic instructional design activities to meet the needs of various STEM Education populations.

STEM 6318 Trends & Issues in STEM Educ **3 SCH (3-0)**

This course provides an opportunity to explore the critical trends and issues being debated within the field of STEM Education. This course examines trends and issues from multiple perspectives and serves as an impetus to students' understanding of the current tensions in the field. Using a critique framework, students will assess the impact of new ideas and issues in STEM Education.

STEM 6320 Leadership in STEM Education **3 SCH (3-0)**

Explores the theoretical and the practical considerations of STEM education leadership in creating, developing, and leading STEM initiatives. This course examines the leadership functions of STEM program leaders that contribute to their roles as curricular leaders, program administrators, and change agents.

STEM 6322 Research in STEM Education **3 SCH (3-0)**

Designed to survey the educational research practices of Science, Technology, Engineering, and Mathematics (STEM) disciplines, this course investigates the approaches used in studying the teaching/learning processes within the context of each discipline. Individually and collaboratively students will discover similarities, distinctions and overlaps among questions posed, research designs, and investigations into best practices with respect to improving teaching and learning among STEM disciplines.