

STEM Educ (STEM ED)

Courses

STEM ED 160. Integrative Physical Science for Elementary. 4 Credits.

A conceptual physical science course intended for elementary education majors. Topics include the study of the structure and properties of matter, interactions and energy, interactions and forces, interactions and systems (electricity and magnetism), and the study of waves (including light and sound).

Typically Offered: Fall.

STEM ED 199. Special Topics. 1-4 Credits.

Courses not offered in the regular catalog that provide an opportunity to extend student learning.

Typically Offered: On sufficient demand.

Repeatable: Up to 12 Credits.

STEM ED 306. Inventions and Innovations - Technology Education for Children. 2 Credits.

A course focused on technology and society, invention and innovation, engineering for children, evaluating available integrated STEM curricula, as well as exploring methods for the implementation of integrated STEM activities in the elementary classroom. (Elementary)

Typically Offered: Fall.

STEM ED 306L. Inventions and Innovations - Technology Education for Children Lab. 1 Credit.

An opportunity to participate in lab-format activities that support the STEM ED 306 course.

Typically Offered: Fall.

STEM ED 310. Design, Technology and Engineering for Children. 2 Credits.

A course focused including technology, design and the engineering process, as well as methods integrating STEM activities into thematic units in the elementary school curriculum. (Elementary)

Typically Offered: Summer.

STEM ED 310L. Design, Technology and Engineering for Children Lab. 1 Credit.

An opportunity to participate in lab-format activities that support the STEM ED 310 course. (Elementary)

Typically Offered: Summer.

STEM ED 331. Innovation and Engineering Design. 2 Credits.

Prepares prospective teachers to teach a middle school course using engineering design concepts and activities to understand how criteria, constraints, and processes affect designs. Activities include brainstorming, visualizing, modeling, constructing, testing and refining designs.

Typically Offered: Summer.

STEM ED 331L. Innovation and Engineering Design Lab. 1 Credit.

An opportunity to participate in lab-format activities that support the STEM ED 331 course.

Typically Offered: Summer.

STEM ED 342. Building Math. 3 Credits.

A course focused on the implementation of hands-on transdisciplinary investigations with project-based engineering design activities for middle school students. Algebraic thinking skills are emphasized through the collection and analysis of data to solve real problems as well as analysis and supplementation of available STEM education curricula.

Typically Offered: Summer.

STEM ED 355. STEM Curriculum and Methods for Elementary. 3 Credits.

Foundational course for fully implementing effective elementary-level STEM (Science, Technology, Engineering, and Mathematics) Education. Reviews and explores current trends in STEM Education; standards-based education and backward design; integration of content; evolution, philosophy, purpose, methods, and standards of STEM disciplines; and interdisciplinary methods for successfully engaging students and achieving STEM literacy.

Typically Offered: Spring.

STEM ED 411. STEM Curriculum and Methods. 3 Credits.

The study of the history and evolution of technology education from the 19th century to the current standards movement. Methods and management techniques appropriate to the technology education laboratory are studied including the management of student organizations.

Typically Offered: Fall.

STEM ED 431. Design for Engineering. 2 Credits.

An orientation and exposure to the careers and challenges of engineering and other STEM fields. Major engineering concepts included are modeling, systems, optimization, technology-society interaction, design and ethics.

Typically Offered: Fall.

STEM ED 431L. Design for Engineering Lab. 1 Credit.

An opportunity to participate in lab-format activities that support the STEM ED 431 course.

Typically Offered: Fall.

STEM ED 450. Engineering the Future. 3 Credits.

A course focused on concepts in physics, mathematics, and the engineering design process while exploring the social, historical, and environmental contexts of current and emerging technologies. Students develop a practical understanding of society's influence on the development of technology and the importance of technological literacy for everyone.

Typically Offered: Spring.

STEM ED 499. Special Topics. 1-4 Credits.

Courses not offered in the regular catalog that provide an opportunity to extend student learning.

Typically Offered: On sufficient demand.

Repeatable: Up to 12 Credits.