

SCIENCE/MATH EDUCATION (SMED)

SMED 101 Step 1: Introduction to Inquiry-Based Approaches to Teaching 3 Hours

Introduction to theory and practice necessary to design and deliver high quality inquiry-based math and science instruction. Students explore and practice the guided inquiry process, create lesson plans and implement them during visits to elementary classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites. **Colonnade/Statewide General Education Code E-SB | SB**
Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 102 Step 2: Introduction to Inquiry-Based Lesson Design 3 Hours

Further exploration of inquiry-based learning experiences, developing skills designing, teaching, analyzing, and assessing inquiry-based math and science lessons. Students design lesson plans and implement them during visits to middle school classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites. **Colonnade/Statewide General Education Code E-SB | SB**
Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 300 Middle Grades Science Skills and Methods 3 Hours

Laboratory-based introduction to the science skills and methods needed by middle school teachers. Note: Nine hours of science and admission to Teacher Education is required.

Prerequisite(s): MATH 117

Restriction(s): Students with a semester level of Academy Junior, Academy Senior or Freshman may **not** enroll.

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024

SMED 301 Designing and Teaching Inquiry-Based Mathematics and Science Units 3 Hours

Develops students' skills in designing, teaching, analyzing, and assessing inquiry-based math and science lessons and units within multiple and diverse field experiences. Fieldwork required; students are responsible for arranging their own transportation to sites. Note: Nine hours of math / science coursework is required.

Restriction(s): Students with a semester level of Freshman may **not** enroll.

Recent Term(s) Offered: None

SMED 310 Knowing and Learning in Mathematics and Science 3 Hours

Introduction to theories and principles of cognition and learning with emphasis on knowing and learning in math and science. Introduction to research on learning, memory, individual development, motivation and intelligence. Applications of learning theory will be explicitly tied to design of lesson plans, instruction and assessment.

Prerequisite(s): (SMED 101 with a minimum grade of C and SMED 102 with a minimum grade of C) or SMED 101 with a minimum grade of B

Restriction(s): Students with a semester level of Academy Junior, Academy Senior or Freshman may **not** enroll.

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 320 Classroom Interactions 3 Hours

Designed to expand student's abilities to understand how learning theories are applied in instructional settings as students develop, implement and evaluate activities and strategies for teaching diverse students equitably. Fieldwork required; students are responsible for arranging their own transportation to sites.

Prerequisite(s): SMED 310 with a minimum grade of C

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 340 Perspectives on Mathematics and Science 3 Hours

Introduction to the historical, social, and philosophical implications of math and science through investigations of pivotal experiments and findings. Includes integrated laboratory experiences that replicate significant discoveries.

Prerequisite(s): SMED 310 with a minimum grade of C

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 360 Research Methods for Math and Science Teachers 3 Hours

Laboratory-based introduction to the tools and techniques used by scientists and mathematicians to further an understanding of the natural world and application of this knowledge to math and science education. Students will design and carry out laboratory investigations, and present written and oral reports of the results.

Prerequisite(s): SMED 310 with a minimum grade of C

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 400 Applying Middle Grade Science Across Disciplines 3 Hours

Introduction to the knowledge and skills needed to create middle grades science lessons that incorporate content and real-world examples from different disciplines. Note: 15 hours of science required as prerequisite.

Prerequisite(s): SMED 300

Recent Term(s) Offered: spring 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 470 Project-Based Instruction 3 Hours

Methods, techniques, and technologies used to implement and assess problem-based investigations in math and science classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

Prerequisite(s): SMED 320 with a minimum grade of C and permission of instructor

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024

SMED 489 SMED Student Teaching Seminar 3 Hours

Provides a bridge between the theory and practice of math and science teaching. Methods, techniques, technologies and issues pertinent to math and science instruction in middle grade and secondary classrooms. Field experiences in public schools and/or other appropriate settings away from campus are required. Pre-Service Teachers are responsible for their own transportation to designated or assigned sites. Note: Approved for admission to student teaching required in addition to MGE 490 or SEC 490.

Recent Term(s) Offered: spring 2022; fall 2022; spring 2023; fall 2023; spring 2024; fall 2024