

K-12 SCIENCE SPECIALIST ENDORSEMENT

ED 609: Contemporary Issues in Science Education (2 credits)

This course highlights current issues in science education, the role of inquiry in science learning, and what research says about improving student outcomes. The course will provide an introduction to K-12 science content and process standards and raise awareness of potential benefits, challenges, and the research base associated with multiple pedagogical strategies. Participants will gain an understanding of the components needed to create a learning environment that encourages and supports *all* children in building understandings, making connections, and conducting scientific investigations.

Fulfills SD Administrative Rule 24:15:06:40 [3b, 3e, 4a, 4d]

ED 619: Earth and Space Science Concepts for K-12 Teachers (2 credits)

This course is designed for K-12 educators to deepen their understanding of Earth and space science concepts that build from kindergarten through high school. Connections to other areas of science are also emphasized. Instruction revolves around scientific investigations and includes explicit attention to questioning, conjectures, and justification. Participants reflect on the benefits and challenges of this kind of learning environment and consider implications for their own teaching.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4c]

ED 629: Life Science Concepts for K-12 Teachers (2 credits)

This course is designed for K-12 educators to deepen their understanding of life science concepts that build from kindergarten through high school. Connections to other areas of science are also emphasized. Instruction revolves around scientific investigations and includes explicit attention to questioning, conjectures, and justification. Participants reflect on the benefits and challenges of this kind of learning environment and consider implications for their own teaching.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4c]

ED 639: Physical Science Concepts for K-12 Teachers (2 credits)

This course is designed for K-12 educators to deepen their understanding of physical science concepts that build from kindergarten through high school. Connections to other areas of science are also emphasized. Instruction revolves around scientific investigations and includes explicit attention to questioning, conjectures, and justification. Participants reflect on the benefits and challenges of this kind of learning environment and consider implications for their own teaching.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4c]

ED 649: Translating Theory into Practice: Earth and Space Science (2 credits)

This course is designed to help teachers think through major ideas within K-12 Earth and space science and to use educational research to examine how students develop their ideas. The course is also designed to raise awareness of common student misconceptions and to deepen teachers' knowledge of effective instructional practices.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4a, 4c, 4d]

ED 659: Translating Theory into Practice: Life Science (2 credits)

This course is designed to help teachers think through major ideas within K-12 life science and to use educational research to examine how students develop their ideas. The course is also designed to raise awareness of common student misconceptions and to deepen teachers' knowledge of effective instructional practices.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4a, 4c, 4d]

ED 669: Translating Theory into Practice: Physical Science (2 credits)

This course is designed to help teachers think through major ideas within K-12 physical science and to use educational research to examine how students develop their ideas. The course is also designed to raise awareness of common student misconceptions and to deepen teachers' knowledge of effective instructional practices.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 3b, 3d, 4a, 4c, 4d]

ED 679: Assessment of Science Teaching and Learning (2 credits)

This course supports educators in assessing what K-12 students know, their capacity to conduct investigations, their ability to reason scientifically, and their attitudes toward science. Current assessment practices, from informal questioning to standardized testing, are explored, and the use of assessment information to guide instruction is emphasized. The course also considers national data and examines connections between staff development, classroom practice, and student outcomes, thereby laying a foundation for discussions about the future direction of local, state, and national science improvement efforts.

Fulfills SD Administrative Rule 24:15:06:40 [3e, 4a, 4b]

ED 749: History, Nature, and Context of Science (2 credits)

This course examines the historical development of scientific ideas from antiquity to the present and the evolution of scientific thought as an aspect of human culture. Emphasis is given to the impact of these discoveries on the era and on subsequent scientific ideas; less on the actual developments of the separate scientific disciplines. Participants study the historical perspectives of science and how science interacts with and influences personal, environmental, and societal decisions. Participants also develop an understanding of the history behind concepts studied within K-12 science classes and expand their ability to make use of historical material in their teaching practice.

Fulfills SD Administrative Rule 24:15:06:40 [3b, 3c]

ED 759: Leadership in K-12 Science (2 credits)

This course addresses an array of professional development strategies including co-teaching, mentoring, coaching, workshops, and shared leadership. Emphasis is given to identifying needs and facilitating staff development in science content, science pedagogy, and assessment of adult learners. Participants will refine their capacity for professional leadership in school science. They will gain knowledge, skills and attitudes to support the professional growth of other teachers and to provide guidance for parents, administrators, and the broader community about issues related to the improvement of science education.

Fulfills SD Administrative Rule 24:15:06:40 [3a, 4e]

Certificate in Science Education: The following coursework (12 credits) constitutes a stand-alone graduate-level certificate in science education.

ED 609	Contemporary Issues in Science Education
ED 619-629-639	(1) Science Concepts for K-12 Educators
ED 649-659-669	(1) Translating Theory into Practice
ED 679	Assessment of Science Teaching and Learning
ED 749	History, Nature and Context of Science
ED 759	Leadership in K-12 Science

This Certificate represents a significant step toward the K-12 Science Specialist Endorsement. To qualify for the endorsement, 4 additional courses as well as "advanced certification" as recognized by the SD Department of Education (a master's degree or above or National Board Certification) and three years of experience teaching science in a K-12 setting are also required.

MSCI with Specialization in Science Education: 18 specialization credits plus 17 MSCI core class credits (listed below) comprise the master's degree. (35 credits total)

Core Courses for the MSCI

ED 630 Educational Inquiry and Collaboration (3 credits) **

ED 703 Applying Learning Theory to Instruction & Assessment (3 credits)

ED 744 Curriculum Development & Instruction (3 credits)

ED 748 Cultural Diversity in Schools (3 credits)

ED 750 Action Research in Schools (3 credits)

ED 790 Educational Research in Schools (2 credits)

***The requirements of ED 630 (3) will be met by taking ED 663 Graduate Writing (1) + ED 609 Contemporary Issues in Science Education (2)*

Please Note: As specified in South Dakota Administrative Rule 24:15:06:40, in order for a graduate of an approved K-12 Science Specialist program to receive a K-12 Science Specialist Endorsement from the South Dakota Department of Education, Standards 1 and 2 below must be met. All other endorsement standards are met through the coursework described above.

Standard 1: Advanced certification (possess a master's degree or above and/or National Board Certification).

Standard 2: Three years of experience teaching science in a K-12 setting.

For more information, please contact:

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