

# SCE: Science Education Courses

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## Courses

SCE 3905 Directed Study

1-12 sh (may be repeated indefinitely for credit)

SCE 4310 Teaching Science in the Elementary School

3 sh (may not be repeated for credit)

This course incorporates current research and best practices in science education to prepare prospective teachers to foster meaningful science learning in the elementary (K-6) classroom. In the course, prospective teachers reflect on and develop their competence in the three dimensions of science learning, and their understanding of the nature of science. They also explore subject-specific pedagogy with an emphasis on planning inquiry-based instruction that engages elementary learners in experiencing and explaining phenomena, and builds on their prior knowledge. Furthermore, the course develops prospective teachers' awareness of strategies to assess science learning, and promote equitable participation of underrepresented populations in science learning experiences. A material and supply fee is assessed for an elementary science materials kit.

SCE 4320 Teaching Science in the Middle and Secondary Schools

3 sh (may not be repeated for credit)

Theory and methods of teaching science in the middle and secondary schools; explores current research on approaches in teaching and learning science; examines the practice of science, disciplinary core ideas in specific science disciplines of choice (i.e. Biology, Earth/Space, Chemistry, Physics), and crosscutting themes in science; compares various models of teaching (i.e. direct instruction, inquiry, project-based learning); Includes practices to effectively move student thinking toward meaningful understanding focusing on best practices in STEM disciplines.

SCE 4905 Directed Study

1-12 sh (may be repeated indefinitely for credit)

SCE 6017 Science Instruction in the Elementary School

3 sh (may not be repeated for credit)

Theory and practice of elementary school science education, including history, philosophy, research, curricula, and instructional strategies. Demonstration teaching, individualized instruction and action research. Credit may not be received for both SCE 6017 and SCE 6117.

SCE 6265 Science Instruction in the Middle and Secondary School

3 sh (may not be repeated for credit)

Prerequisite: EDG 5309

This course is designed to assist preservice middle and secondary science teachers in developing the pedagogical content knowledge required to teach science in a manner consistent with current reform efforts in science education. The course focuses on four components related to teaching and learning science in grades 6-12: 1) how students learn science, 2) science curriculum, 3) instructional methods and strategies for teaching science, and 4) science assessment practices.

SCE 6905 Directed Study

1-12 sh (may be repeated indefinitely for credit)