

Science Endorsement Program

The purpose of the Science Endorsement Program (SCEN) is to further prepare teachers who currently hold a valid CE or CEAS in K-5 Elementary certificate with 5-8 subject specialization in science. The program consists of five 3-credit courses and is designed to provide teachers with the necessary knowledge and skills to pass the Praxis II Middle School Science test. Upon successful completion of the program, candidates will be recommended to the NJ Department of Education for middle school science licensure.

The objectives of the program are:

- a. To enable teachers to incorporate the NJ Core Curriculum Content Standards for Science and the National Science Teacher Association Standards in teaching and learning science.
- b. To provide teachers with the ability to formulate scientific questions to guide student learning with real-world application of scientific principles.
- c. To provide teachers with basic laboratory skills in order to enrich their own as well as their students' understanding of science concepts and applications.
- d. To provide teachers with the confidence and skills that will enable them to become effective science teachers.

This is a joint program between the College of Science and Health and the College of Education.

Curriculum

(All are 3-credit courses with some lab exercises embedded.)

SCEN 500- Scientific Processes (this is a prerequisite for all other courses)

The course provides an overview of the scientific disciplines of astronomy, physics, chemistry, geology, and biology as well as instructional methods for each.

SCEN 501-Physical Science I

The purpose of this course is to develop students' analytical abilities in the physical sciences. It is an overview of the physical sciences, including fundamentals of measurement, mechanics, thermal physics, electromagnetism, optics, atomic and nuclear physics, and astronomy. The historical perspective between the physical sciences and technology will be examined, as well as contributions from various cultures.

SCEN 502- Physical Science II

Topics will be covered through an inquiry-based mode and will represent the fundamental principles of chemistry, such as: the physical and chemical properties of matter, gas laws, characteristics of elements, compounds, and mixtures, knowledge of chemical bonding and chemical formulas, chemical reactions and balancing equations, atomic theory, historical development and cultural significance of chemical science, major components of the atom and the Periodic Table.

SCEN 503- Life Sciences

The course is an overview of the life sciences, including evolution, cell biology, genetics, microbiology, animal physiology, botany, and ecology.

SCEN 504- Earth Systems Science

The course analyzes the fundamental processes governing the hydrosphere, atmosphere, lithosphere, and biosphere. Individual topics address connections between earth systems operation, current environmental problems, and the role of humans in these processes.