

RPDP High School Science Advanced Studies Program (HSSASP)



This 18-credit program consists of courses designed to provide teachers with the science content and instructional strategies to facilitate their success as high school science teachers. It addresses major topics in the high school curriculum and gives teachers multiple perspectives on teaching students who take the corresponding course. Each course includes modeling *The Components of an Effective Lesson*, *Teacher Expectancies*, linking to high school science courses, connecting to other disciplines, and practicing hands-on, inquiry-based activities, interactive learning, and participation in a balanced delivery of instruction.

High School Science ASP		
Course Name	Course Coding	Credits
RPDP HSSCP Lab and Process	SCI 650 A	1
RPDP HSSCP Literacy and Assessment	SCI 650 B	2
Technology in Science Part I	SCI 630 H <small>sec TBA</small>	1
Technology in Science Part II	SCI 630 H <small>sec TBA</small>	1
RPDP HSSCP Biology for HS Teachers (Sem 1)	SCI 650 C	3
RPDP HSSCP Biology for HS Teachers (Sem 2)	SCI 650 D	3
RPDP HSSCP Earth Science for HS Teachers (Sem 1)	SCI 650 E	3
RPDP HSSCP Earth Science for HS Teachers (Sem 2)	SCI 650 F	3
RPDP HSSCP Chemistry for HS Teachers (Sem 1)	SCI 650 G	3
RPDP HSSCP Chemistry for HS Teachers (Sem 2)	SCI 650 H	3
RPDP HSSCP Physics for HS Teachers (Sem 1)	SCI 650 J	3
RPDP HSSCP Physics for HS Teachers (Sem 2)	SCI 650 K	3
RPDP HSSCP Principles of Science for HS Teachers (Sem 1)	SCI 650 P	3
RPDP HSSCP Principles of Science for HS Teachers (Sem 2)	SCI 650 Q	3
AP Mini-Course – accomplished by participation in the Silver State AP Institute in June (formerly SCI 650 L, M, N) For details about the AP Institute visit, http://silverstateap.net/		1
Total Credits for HSSASP		18

Choose any 4 of these 10 three-credit classes

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REQUIRED COURSES:

RPDP HSSCP LAB AND PROCESS (1 CREDIT)

This one-credit course addresses the Nevada Science Scientific Inquiry 9-12 Standards, as well as the skills, safety concerns, and processes needed by high school science teachers for organizing and maintaining an effective and safe laboratory environment and for teaching students to collect, record, and evaluate data obtained in laboratory investigations.

UNLV: Lab Safety and Science Process, SCI 650 A

RPDP HSSCP LITERACY AND ASSESSMENT (2 CREDITS)

This two-credit course addresses development of assessment items for the high school science classroom and literacy techniques that teachers can use with their students to increase literacy in the science content area.

UNLV: Content Area Literacy, SCI 650 B

TECHNOLOGY IN SCIENCE PART I (1 CREDIT)

This one-credit course will focus on the integration of probeware into science laboratory investigations. Instruction will include using TI-84+ graphing calculator, data collection devices, and sensors and probes to perform a range of traditional science experiments in; Physics, Chemistry, Earth Science, and Biology, using current technologies for data collection, analyzing, and reporting.

UNLV: SCI 630 H, Section TBA

TECHNOLOGY IN SCIENCE PART II (1 CREDIT)

This one-credit course will build upon the techniques presented in the Technology in Science Part I course. Instruction will include using computers and handheld devices (LabPro, LabQuest), with sensors and probes to perform a range of traditional science experiments in Physics, Chemistry, Earth Science and Biology, using current technologies for data collection, analyzing, and reporting. The Science Writing Heuristic model for laboratory write-ups will be emphasized throughout this course.

UNLV: SCI 630 H, Section TBA

RDPD ADVANCED PLACEMENT MINI-COURSE (1 CREDIT)

This requirement of the High School Science Certificate Program is accomplished by participation in the Silver State AP Summer Institute. Information related to this institute including; conference registration, conference schedule, and science offerings can be accessed at <http://silverstateap.net/>.

Conference credit is through UNLV with details at <http://silverstateap.net/credit.html>.

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ELECTIVE CLASSES: CHOOSE ANY FOUR (4) OF THE FOLLOWING TEN (10) THREE-CREDIT CLASSES:

RPDP HSSCP BIOLOGY I FOR HS TEACHERS (SEM 1) (3 CREDITS)

This first semester of the one-year biology course is designed to survey the biological sciences. The emphasis is on developing inquiry skills and problem-solving techniques, nature of science, chemistry of life, cellular biology, cell transport, cell energy, cell cycle, molecular genetics and laws of genetics. Students will study both biology content and the pedagogy of teaching high school biology.

UNLV: Biology IA, SCI 650 C

RPDP HSSCP BIOLOGY FOR HS TEACHERS (SEM 2) (3 CREDITS)

This second semester of the one-year biology course is designed as a survey of the biological sciences. The emphasis is on developing inquiry skills and problem-solving techniques, nature of science, evolution and diversity, human biology, taxonomy and classification and ecology. The course will also familiarize the student with the influences and interrelated nature of science and technology in contemporary society.

UNLV: Biology IB, SCI 650 D

RPDP HSSCP EARTH SCIENCE FOR HS TEACHERS (SEM 1) (3 CREDITS)

This first semester of the one-year high school Earth Science course is designed to integrate the scientific principles related to the Earth and its environment. Topics included are matter and energy, Earth chemistry, Earth history, Earth resources and environment, weathering and soil and erosion and depositional systems. Scientific methodology and the metric system will be integrated throughout the course. Demonstrations and/or lab experiences will be an integral part of instruction.

UNLV: Earth Science IA, SCI 650 E

RPDP HSSCP EARTH SCIENCE FOR HS TEACHERS (SEM 2) (3 CREDITS)

This second semester of the one-year high school Earth Science course is designed to integrate the scientific principles related to the Earth and its environment. Topics included are Topography, Structural Forces, Astronomy, Meteorology, and Oceanography. Scientific methodology and the metric system will be integrated throughout the course. Demonstrations and/or lab experiences will be an integral part of instruction.

UNLV: Earth Science IB, SCI 650 F

RPDP HSSCP CHEMISTRY I FOR HS TEACHERS (SEM 1) (3 CREDITS)

This course is the first semester of Chemistry 1. Topics included are mathematics of chemistry, safety, laboratory procedures, elements-compounds-mixtures, atomic theory and structure, structure and organization of the periodic table, mole concept, chemical bonding, nomenclature, and chemical equations. Science, Technology, and Society (STS) Issues will be an integral part of this course. Additional topics may include history of chemistry, biochemistry, qualitative chemistry, and research projects.

UNLV: Chemistry IA, SCI 650 G

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RPDP HSSCP CHEMISTRY I FOR HS TEACHERS (SEM 2) (3 CREDITS)

This course is the second semester of Chemistry I. Topics included are stoichiometry, gases, liquids, and solids, solutions, thermodynamics, kinetics, equilibrium, electrochemistry, organic chemistry, nuclear chemistry, chemistry and the environment and acids, bases, and salts. Safety and laboratory procedures will be an integral part of this course. The mathematics of chemistry will be used throughout this course.

UNLV: Chemistry IB, SCI 650 H

RPDP HSSCP PHYSICS I FOR HS TEACHERS (SEM 1) (3 CREDITS)

This course is the first semester of Physics I. Topics included are laboratory procedures, mathematics review, safety, kinematics, dynamics, and energy. Physics is a course that informs students about the basic relationships of forces, motion, and the different forms of energy. Demonstrations and/or lab experiences will be an integral part of this course.

UNLV: Physics IA, SCI 650 J

RPDP HSSCP PHYSICS I FOR HS TEACHERS (SEM 2) (3 CREDITS)

This course is the second semester of Physics I. Topics included are laboratory procedures, waves, electricity, and magnetism. Physics is a course that informs students about the basic relationships of forces, motion, and the different forms of energy. Demonstrations and/or lab experiences will be an integral part of this course.

UNLV: Physics IB, SCI 650 K

RPDP HSSCP PRINCIPLES OF SCIENCE FOR HS TEACHERS (SEM 1) (3 CREDITS)

This first semester of the one-year course is designed to present integrated concepts in Earth science, biology, environmental science, chemistry, and physics. Demonstrations and/or lab experiences will be an integral part of instruction. The concepts in Principles of Science will be taught by using the various processes involved in scientific inquiry. The course is designed to provide a foundation for further study in science as students explore unifying scientific principles and concepts.

UNLV: Principles of Science IA, SCI 650 P

RPDP HSSCP PRINCIPLES OF SCIENCE FOR HS TEACHERS (SEM 2) (3 CREDITS)

This second semester of the one-year course is designed to present integrated concepts in Earth science, biology, environmental science, chemistry, and physics. Demonstrations and/or lab experiences will be an integral part of instruction. The concepts in Principles of Science will be taught by using the various processes involved in scientific inquiry. The course is designed to provide a foundation for further study in science as students explore unifying scientific principles and concepts.

UNLV: Principles of Science IB, SCI 650 Q