Science (SCI)

**SCI 2600. Lab Safety for Teachers. 1 Hour.**
Scientific school laboratory safety certification course required for secondary education majors to receive teaching endorsements in the sciences. Course will include the necessary knowledge required for pre-service teachers to safely teach lab science, including identifying the most common safety issues and providing affordable solutions. Offered upon sufficient student need. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Prepare and manage a safe and effective secondary education science laboratory. 2. Explain general safety responsibilities of workers and employers. 3. Interpret and explain safety data sheets (SDS). 4. Explain hazard communication standards (right to know laws). 5. Recognize and teach emergency procedures as well as the proper use of protective personal equipment. 7. Explain and communicate proper disposal procedures.

**SCI 4700. Secondary Science Teaching Methods. 3 Hours.**
Acquaintance and practice with various teaching and assessment methods in science. Development of science curricula emphasizing the integrated linkages between subjects. Development of science lesson and unit plans. It is recommended that students complete this course immediately prior to student teaching. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Plan and teach lessons based on differences in cognitive, linguistic, social, emotional and physical areas of student development. 2. Create content instruction according to individual learner differences and cultural and linguistic diversity. 3. Apply current science education standards to lesson plan development. 4. Use varied assessments to promote student achievement of science content standards. 5. Articulate a rationale for the place of controversial scientific topics in the secondary schools. 6. Develop awareness of the role of science content as a means for participation of youth as contributing members of a social and political democracy. 7. Demonstrate appropriate proficiency in practicum experience. FA.

**SCI 4800R. Independent Research. 1-3 Hours.**
Students will devise and perform original, preferably unique research projects in their respective Physical Science fields. The culmination of this project will be a publication-quality paper on their research that uses primary scientific literature pertinent to the student’s field and individual projects. Repeatable for a maximum of 6 credits subject to graduation restrictions. Offered upon sufficient student need. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Use the scientific method to develop hypotheses, design experiments, and draw conclusions from results. 2. Design and modify experiments during the progress of a research project. 3. Interpret results from experiments, modify the hypothesis. 4. Draw conclusions according to research goals. 5. Perform research independently, and interact with other students and faculty that are engaged in the project. 6. Utilize outside resources (scientific databases, literature, etc) to interpret results and compare to existing and previous work in the field of your research project. Prerequisite: Instructor permission and Senior standing. FA, SP, SU.