Science Secondary Education

SCI 410 Pedagogy and Methods for Science Education I
Fundamental science teaching strategies, theories, and practices are introduced to students. Implementation of the New York State Math, Science, and Technology Standards and core science curricula is emphasized, in addition to the importance of inquiry-based learning, laboratory activities, and laboratory safety. Students plan lessons and make several presentations. Students complete an action research project based on field observations made in conjunction with SCI 449.

Prerequisites: Acceptance to a Science Secondary Teacher Education program; minimum g.p.a. of 2.75
Corequisite: SCI 449
Note: students must register for the same sections of SCI 410 and 449

SCI 420 Pedagogy and Methods for Science Education II
Builds on the practical application of science pedagogy introduced in SCI 410. Advanced science teaching strategies are presented. Emphasis is placed on the integration of theory and practice, extension of scientific inquiry for diverse learners and assessment of student progress. Essential themes and critical issues in the science disciplines are explored in the context of teaching in secondary schools. Experiences in SCI 450 are incorporated into SCI 420; Note: you must register for the same sections of SCI 420 and 450.

Prerequisites: C or higher in SCI 410; minimum g.p.a. of 2.75
Corequisite: SCI 450
3 credits

SCI 447 Directed Readings in Science Education
Advanced study in science education under the supervision of a science education faculty member.

Prerequisite: Permission of the science education program
1-6 credits

SCI 449, 450 Field Experience, Grades 7-12
Students visit science classes in secondary schools and participate in selected school-based outreach programs for a total of 50 hours during the semester per course. The observations made during these visits serve as the basis for discussions that occur in class and for the research component of SCI 410, 420. Due to public school schedules, the majority of these experiences occur during morning hours.

Prerequisites to SCI 449: Acceptance to a Science Secondary Teacher Education program; minimum g.p.a. of 2.75
Corequisite to SCI 449: SCI 410; Note: students must register for equivalent sections of SCI 410 and 449

Prerequisites to SCI 450: C or higher in SCI 410; minimum g.p.a. of 2.75
Corequisite to SCI 450: SCI 420; Note: students must register for equivalent sections of SCI 420 and 450.
1 credit per course, S/U grading

SCI 451 Supervised Teaching-Science: Middle Level Grades 7-9
Prospective science teachers participate in full-time supervised student teaching in partnership schools, grades 7-9. Frequent consultation with the University supervisor helps the student interpret and evaluate the teaching experience. Applications must be filed in the semester preceding student teaching.

Prerequisite: C or higher in SCI 420; SSE (formerly SSD) 327 and 350; 2.75 cumulative g.p.a.; completion of all graduation requirements; Permission of department

Corequisites: SCI 452 and 454; Note: students must register for equivalent sections of SCI 451, 452 and 454
6 credits, S/U grading

SCI 452 Supervised Teaching-Science: High School Grades 10-12
Prospective science teachers participate in full-time supervised student teaching in partnership schools, grades 10-12. Frequent consultation with the University supervisor helps the student interpret and evaluate the teaching experience. Applications must be filed in the semester preceding student teaching.

Prerequisite: C or higher in SCI 420; SSE (formerly SSD) 327 and 350; 2.75 cumulative g.p.a.; completion of all graduation requirements; Permission of department

Corequisites: SCI 451 and 454; Note: students must register for equivalent sections of SCI 451, 452 and 454
4 credits, S/U grading

SCI 454 Science Student Teaching Seminar
Includes discussions of teaching techniques that are critical to success as a science teacher, such as classroom management and effective questioning techniques. Analysis of actual problems and issues encountered by the student in his or her student teaching experience are part of each seminar session.

Prerequisites: C or higher in SCI 420; SSE (formerly SSD) 327 and 350; 2.75 cumulative g.p.a.; completion of all graduation requirements; Permission of department

Corequisites: SCI 451 and 452; Note: students must register for equivalent sections of SCI 451, 452 and 454
3 credits

SCI 475 Undergraduate Teaching Practicum
Study of the literature, resources, and teaching strategies in science education with a supervised clinical experience in undergraduate instruction.

Prerequisite: Permission of instructor and science education program
3 credits, S/U grading

SCI 487 Applied Research
Repeatable to a maximum of 6 credits.

Prerequisite: Permission of science education program
0-6 credits