



School of Education  
SYRACUSE UNIVERSITY

**Master of Science in**  
**Science/Biology Education: Preparation 7-12**  
**Science/Chemistry Education: Preparation 7-12**  
**Science/Earth Science Education Preparation 7-12**  
**Science/Physics Education: Preparation 7-12**

## Science Education at SU

The School of Education's Teaching and Leadership Programs prepares educators to promote the active learning and academic achievement of all students in inclusive environments, and to serve as principled leaders and advocates for students in their schools, communities, and profession. We offer a bachelor's degree in Science Education, and a master's degree preparation program for those with a science background who are seeking certification in one of the four areas of science. Two doctoral programs are also available.

## MS in Science Education/Preparation Program

*For further information, contact:*

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### *This program offers teacher candidates:*

- the opportunity for those holding a bachelor's degree with the appropriate science and other prerequisites, but no prior coursework in teaching, to prepare for New York State initial adolescence certification as science teachers (grades 7-12) while earning a master's degree.
- a 40-credit hour program that exposes students to cutting-edge ideas in education courses taught by faculty specialists, and an opportunity to take advantage of courses offered by other SU schools and the SUNY College of Environmental Science and Forestry.
- special emphasis on working with struggling students, serving diverse student populations, using technology to promote active learning, and teachers as researchers of professional practice and builders of practical theory.
- 5 field placements allowing each candidate to learn from a variety of urban, rural and suburban school settings, teachers, and youth with diverse backgrounds and abilities.

- a 16-month full-time program (September to December); or the opportunity to begin part-time (if available at necessary times), culminating in a 9-credit spring semester followed by a 9-credit fall semester.
- sharing professional development with a cohort of students in science education, and in other secondary programs, through several common core courses.
- participation in the Academy of Science Educators—7-12 teachers, SU faculty and staff, and students meeting together a few times a year to share professional and program development ideas.

### *Admission to the program:*

Program course prerequisites:

- A bachelor's degree with a 30 credit major or concentration in one of the four science areas for which certification is offered, or its equivalent. (One or two courses may be included in the master's program.
- Equivalency for those without a science major:
  - Minimum 30 credits total in the science area for which certification is sought.
  - Minimum of 18 credits beyond the introductory level in the primary science area;
  - Minimum two laboratories, one of which must be beyond the introductory level; and
  - Specific content, depending on the primary science area—(appropriate applied courses will be considered):
    - Biology: Coursework must include some attention to three areas: Organismic biology; Genetics/Molecular/Cell biology; and Population Biology/Ecology;
    - Chemistry: Courses must have some attention to inorganic, organic, analytical, and physical chemistry;
    - Earth science may include courses in geology, meteorology, and astronomy; some attention in courses must be given to earth history, paleontology, mineralogy, structural geology, hydrology, and glacial geology.
    - Courses should give attention to mechanics, electricity, thermodynamics, and modern physics— such as relativity, kinetic theory, quantum theory, etc. Other courses might include topics such as optics, circuits, or particle physics.

- General Education course prerequisites include successful completion of:
  - A course with significant writing instruction or equivalent;
  - A course with emphasis on artistic expression; or significant undergraduate or recent participation in the arts;
  - A course in history or with historical focus;
  - A social science course other than history or psychology;
  - A humanities course other than in the arts;
  - A college-level mathematics course;
  - A language other than English (including American Sign Language) through the first year of college study or equivalent, met through appropriate college or high school (Level III) courses.

Applicants who have not completed these prerequisites should consult the program coordinator. *All* applicants are encouraged to have early transcript reviews so that any possible missing prerequisites can be identified in time for coursework to be taken prior to entry.

Admission is competitive, with decisions based on overall and science content grade point averages, recommendations, and the candidate's stated goals. The minimum undergraduate and content grade point average for admission is typically 3.0 on a 4.0 scale. Interviews are not required, but are encouraged.

In addition, to initial admissions criteria, enrolled students must be successful in earlier program courses to be eligible for student teaching semesters. This is evidenced by skill in writing, productive engagement in the assigned field experience, grades of “B” or better in graduate courses, and displaying a professional disposition.

### ***Teacher Certification***

Those completing one of these approved teacher preparation programs are eligible for institutional recommendation for New York State initial adolescence certification in Biology 7-12, or Chemistry 7-12, or Earth Science 7-12, or Physics 7--12. Although not program requirements, NYS initial teacher certification requires U.S. citizenship or permanent residency and passing scores on three examinations. The Liberal Arts and Sciences Test may be taken prior to starting the program; the other two tests, related specifically to teaching and curriculum, are typically taken shortly before program completion. New York State also requires fingerprinting of applicants for certification.

Besides qualifying for initial NYS teacher certification, students meet *academic* requirements for the next level (“professional”) NYS certification. Three years of teaching experience is required before the professional certificate is actually awarded. A continuing education requirement must be met every 5 years.

Science Education students have also been successful in applying for certification in several other states, depending on reciprocity agreements and the other states’ requirements. Some science education students who have 24 appropriate credits in a second science area (according to State Education Department standards) may also apply directly to New York State for certification in that second area.

### ***Placement/Career Services***

The School of Education’s **Career Services Office** maintains job vacancy listings, credential files and employment resource materials, sponsors a teacher recruitment fair, and facilitates the search for employment opportunities. Fees are charged for some services.

### ***Teacher Supply and Demand***

Supply and demand information for teachers varies by area of certification, by geographic area, and even by districts, as retirements, population changes, and other special programs impact. In addition, candidates’ ability to obtain available jobs may be affected by such things as the match between what they have to offer and the districts’ needs, and their ability to fulfill an extracurricular (e.g., coaching) need.

Generally, New York State has a greater need for teachers in selected sciences, mathematics, and special education. The American Association for Employment in Education publishes results of a survey of their member in their “Job Search Handbook for Educators,” which is available at the Education Career Services Office, 270 Huntington Hall.

### ***Applications for admission:***

Although applications for admission may be submitted either on-line or on paper, on-line applications are processed more swiftly and are strongly encouraged. On-line applications may be found and completed at:

<https://apply.embarc.com/grad/syracuse>.

All applications, however submitted, are processed by the Syracuse University Graduate Enrollment Management Center. The Center forwards materials to the program coordinator (and notifies the applicant) once all required information has been received. Candidates who want to apply for an SU scholarship (see financial aid section) should submit separate applications for both admission and a scholarship by February 1; those who do so will receive responses to both applications by March 1. Applications for admission submitted after February 1 will be considered on a space available basis.

Applicants with questions about the application process should contact the School of Education’s Graduate Admissions Recruiter, Liza Rochelson, at 315-443-2505, or [lrochels@sy.edu](mailto:lrochels@sy.edu) or one of the program contacts listed above.

### ***Financial Aid***

*Financial aid* programs available to United States citizens are based on financial need. *Graduate awards and appointments* administered by Syracuse University are merit-based and highly competitive; most require a separate application (i.e., checking the “interested in aid?” box on the admissions application is not sufficient to initiate consideration for specialized awards).

Graduate assistantships, too, require separate contact and application with the area(s) offering the assistantships. Although graduate assistantships are available in Teaching and Leadership Programs and in science departments, they are competitive and subject to availability at appropriate times.

For general information about financial aid programs, and applications for student loans and Federal Work-Study for graduate students, consult the Financial Aid Office at 443-1513, or <http://gradsch.syr.edu/finances.htm>. To determine eligibility for Federal Stafford Loans and/or Federal Work-Study, complete the free application for federal student financial aid, at <http://fafsa.ed.gov>. For information about the School of Education’s own scholarships and awards, consult <http://soeweb.syr.edu/admissions/graduate/scholarships.cfm>.

### ***Faculty***

One advantage of the Syracuse University program in Science Education is that it is university-based, drawing on faculty from a variety of areas. Faculty teaching Science Education students include members of the faculty in the Department of Science Teaching and other education research faculty who are experts in their fields; faculty with strong teaching practitioner backgrounds; and faculty from the science departments of Syracuse University’s College of Arts and Sciences, and the SUNY College of Environmental Science and Forestry.

### ***Special Facilities and Opportunities***

The Department of Science Teaching maintains its own methods classroom that is equipped with Internet capabilities and a wide array of science laboratory equipment. In addition, the department has a classroom set of 30 Texas Instruments TI-83 calculators, CBL devices and the accompanying science probes for biology, chemistry, physics and earth science.

The School of Education has a state-of-the-art video conferencing facility which is regularly used in various courses within the Science Education program. The department also has an assortment of digital camcorders, still cameras, and audio and video equipment for use in courses.

## Program Course and Field Experience Requirements

### Fall Semester:

EDU 605 Understanding Teaching (minimum 25 hours of field experience)	3
EDU 607 Principles of Teaching and Learning in Inclusive Classrooms (minimum 25 hours of field experience)	3
SED 640 Participation in the Professional Development School (Academy of Science Educators)	0

### Candidacy Semester (spring only):

SCE 613 Methods & Curriculum in Teaching Science	3
SED 609 Adapting Instruction for Diverse Student Needs	3
EDU 508 Student Teaching/candidacy (120 hours of student teaching M-F mornings for several weeks (including full-time during Spring Break) and 25 hours of pre-student teaching field experience)	3
SED 640 Participation in the Professional Development School (Academy of Science Educators)	0

### Summer Semester (summer only):

RED 625 Literacy Across the Curriculum (30 hours of field experience)	4
SCE 614 The Nature of Science in Science Education	3

### Standard Student Teaching Semester (fall only):

EDU 508 Student Teaching (11 weeks full time)	6
SED 615 Teacher Development/Science	3
SED 640 Participation in the Professional Development School (Academy of Science Educators)	0

### Electives

Science education elective (e.g. SCE 718, SCE 789, SCE 737, SCE 747, SCI/BIO 544, SCE 600)	3
Science content course (must be 500 level or higher)	3
Science education elective <u>or</u> content	3
Required non-credit sessions on issues of child safety and protection (e.g., drugs, child abuse, violence prevention)	0

**TOTAL** **40**

### ***Professional Portfolio and the Intensive Examination***

The development and successful presentation of a professional portfolio takes place just prior to the candidacy semester, at the end of the candidacy semester, and at the end of the standard student teaching semester. The final requirement is the completion of an Intensive Examination. The master's thesis is not an option in this program.

Course descriptions can be found in the graduate catalog, which is available on line at: <http://www.syr.edu/publications/gradcat/>

The information concerning academic requirements, courses, and programs of study contained in this publication does not constitute an irrevocable contract between the student and the University. The University reserves the right to change, discontinue, or add academic requirements, courses, and programs of study without notice, although every effort will be made to inform students of any changes in a timely manner. (August 1996, Syracuse University) Feb. 16, 2007