

TEACHERS COLLEGE COLUMBIA UNIVERSITY
Department of Mathematics, Science and Technology

SCIENCE EDUCATION PROGRAM

Transitional B Master of Arts in Science Education
with NY State Initial Certification 7-12

Transitional B M.A. in Science Education

Biology 7-12	Program Code: SCIB TRAN
Chemistry 7-12	Program Code: SCIC TRAN
Earth Science 7-12	Program Code: SCIE TRAN
Physics 7-12	Program Code: SCIP TRAN

Brief Program Description

The M.A. Transitional B program in Science Education provides students with opportunities to study science education theory, the discipline of science (including its histories, philosophies, and epistemologies), and professional education. It also provides students with opportunities to merge these studies with intensive field experiences through field-based assignments, courses, and internship experiences. The M.A. program in science education is a 34 point program. Upon its completion students earn both an M.A. degree and a New York State initial license to teach Chemistry or Biology or Physics or Earth Science and General Science in grades seven through twelve.

This program is specifically designed for students admitted to the college as returning Peace Corps fellows volunteers.

Minimum Point Requirement

The minimum point requirement for the Transitional B M.A. in Science Education with NY State Initial Certification 7-12 is 34 points. See Appendix I for *Advising Checklist and Course Guidelines*.

Prerequisite Requirements

1. A baccalaureate degree in one of the sciences. If students do not possess a baccalaureate degree, they must have a minimum of 30 credits in the science (Biology, Chemistry, Physics, and Earth Science), which they choose to seek NY State licensure in.
2. One course of college study of a spoken language other than English or the equivalent, or a passing score on a recognized language proficiency test (CLEP).
3. If students enter the program without having met the prerequisite requirement, they must fulfill them before graduation. If they are not fulfilled, students will still earn an M.A. degree, but they will not receive a New York State initial license. Students may meet these prerequisites while enrolled in the M.A. program; however, these courses cannot be applied to the M.A. degree.

Required Courses

Prerequisite Requirements

30 credits in the science area of certification

One course in a foreign language¹ (see footnotes, last page)

Course Requirements

1. Science Education Methods (9 points required)

4000 plus one middle school level course and one high school level course in your area of certification

- MSTC 4000: Science in secondary school
- MSTC 4044: Biology methods and curriculum laboratory
- MSTC 4045: Earth science methods and curriculum laboratory
- MSTC 4046: Chemistry curriculum and methods laboratory
- MSTC 4047: Physical science curriculum and methods laboratory
- MSTC 4049: Middle school living environment methods laboratory

2. Field Experience (5 points required)

- MSTC 4363: Introduction to science education practice (Corequisite: MSTC 4000)
- MSTC 6401: Internship in science education

3. Professional Education (9 points)

- HBSK 5099: Literacy
- Special Education: Any introduction to special education course
- Elective: Professional education

4. Disciplinary Courses (6 points) 2 courses in your area of certification from those listed below:

- MSTC 4043: Science in the environment
- MSTC 4048: Structure of science knowledge and curriculum design
- MSTC 4051: Microbial ecology
- MSTC 4052: Plant biology
- MSTC 4054: Human anatomy and physiology
- MSTC 4056: Concepts in earth science
- MSTC 4057: Concepts in earth science II
- MSTC 4059: Concepts in chemistry
- MSTC 4060: Concepts in chemistry II
- MSTC 4075: Concepts in physics
- MSTC 4076: Concepts in physics II
- MSTC 4151: Modern principles of evolution
- MSTC 4152: Modern concepts in genetics
- MSTC 4153: Invertebrate biology

5. Equity in Science Education Courses (3 points)

- MSTC 4007: Teaching and learning in urban science

Breadth Requirement

Courses which you are required to take out of the department. Please see “Professional Education,” Section 3, Appendix I.

Statement on Integrative Project, Comprehensive Exam or Formal Essay Requirement

In order to graduate all students must complete a Master's Portfolio as the graduation requirement. This assignment will be assigned during your field experiences during the course Internship in Science Education, MSTC 6401. In addition this must be highlighted on the *Intend To Graduate* form which is due in the early semester that you plan to graduate. Please see the Academic Calendar for these deadlines.

Student Teaching/Fieldwork/Practicum/Internship Requirements and Information

Fieldwork for this degree is based on the in-service teaching you will conduct in your own classroom. It is your responsibility to procure and find your own teaching placement in the summer before your entrance to the degree with help from the office of the Peace Corps Fellows program.

Certification and/or Licensure Requirements and Information

You must complete and fill out a TEACH account in coordination with the Office of Teacher Education in order to fulfill NYS teaching certification before you graduate. As part of NY certification requirements you must pass the LAST, CST, ATSW, child abuse identification, violence prevention and safety certification tests. For more details contact the Office of Teacher Education (400 Russell Hall; 212-678-3502; <http://www.tc.columbia.edu/ote/>).² (see footnotes, last page)

Special Requirements for Professional Education Programs under NCATE Review

Completion of the following assignments is required:

- a. Curriculum union plan I and II
- b. Teacher as researcher project
- c. Master's portfolio
- d. Safety workshop
- e. Peace Corps Mentoring Logs
- f. Science Experiment Experience Record

Transfer Credit Evaluation

By College policy, no transfer credit is permitted.³ (see footnotes, last page)

Statement on Satisfactory Progress and Academic Performance

Students are expected to make satisfactory progress toward the completion of degree requirements. Program faculty will annually review each student's progress. Where there are concerns about satisfactory progress, students will be informed by the program faculty. If a student is performing below expectations he/she may be required to complete additional course work. The program will provide a plan and timeline for remediation so students know the expectation for them to continue in the program. If satisfactory progress is not maintained a student may be dismissed from the program. For additional information about Academic Performance, please refer to *Degree Requirements* in the TC Catalog.

An average grade of B or better is expected for satisfactory completion of the degree. According to College policy, no more than 3 points of C- may be credited toward any degree or diploma. Students completing requirements for more than one degree or diploma may count 3

points of C- toward only one such award. A student who accumulates 8 points or more in C- or lower grades will not be permitted to continue study at the College and will not be awarded a degree or diploma. Please see the statement on policy of grades at Teachers College. (URL: <http://www.tc.columbia.edu/registrar/detail.asp?Id=Grades&Info=Definitions+of+Grades+At+Teachers+College>)

Standard Policies and Practices of the College

Services for Students with Disabilities: The College will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Office of Access and Services for Individuals with Disabilities for information about registration (166 Thorndike Hall). Services are available only to students who are registered and submit appropriate documentation.

Statement on Academic Conduct: A Teachers College student is expected to refrain from any conduct, including cheating, plagiarizing, or purchasing documents submitted for academic evaluation, that calls into question his/her academic and/or professional probity. Decisions regarding academic evaluation in all aspects of students' work at the college, including course work, certification examinations, clinical or field experiences, and preparation of dissertations, are within the sole jurisdiction of the faculty concerned, including as appropriate, the department or program staff members. Disciplinary actions (e.g., reprimand, suspension, or dismissal) in cases of academic misconduct can be imposed by the Vice Provost or the Committee on Student Conduct.

Resolution of Student Academic Program Concerns: Any student who has a concern regarding an academic matter may seek assistance. The procedure for resolving academic program concerns (see note of grade correction process below) begins with either the faculty member (if the concern is related to a course) or the student's advisor. If the student is not satisfied with the response or resolution achieved at this first level, or if speaking with the faculty member presents a conflict of interest for the student, the student should proceed to speak with the Program Coordinator in the area in which the academic concern resides. If the student is not satisfied with the response or resolution achieved through the Program Coordinator, the student should proceed to speak with the Chair of the academic department in which the academic concern resides. If the student is still not satisfied with the response or resolution achieved through the Department Chair, or if speaking with the Department Chair presents a conflict of interest for the student, the next step is to contact the Office of the Vice Provost. At any stage of the process, students are welcome to seek the advice and guidance of the Ombudsman, who is charged with attempting to informally resolve student dissatisfaction of an academic nature on a completely confidential basis.

Grade Correction Procedure: The instructor for a course has the responsibility for setting the requirements for a course and making an evaluation of students' work. Once a grade has been given, the instructor is not free to change the grade unless the instructor indicates to the Registrar that an error was made in the original grade transmitted. If a student believes that an error has been made, he/she must take the initiative in bringing about the necessary correction prior to the conclusion of the semester immediately following the semester in which the course was taken. The normal procedure for effecting a correction would be through direct discussion between the

student and the instructor. If redress cannot be attained through such discussions, the student may next appeal to the department chairperson of the department offering the course. If resolution cannot be attained through appeal, the student may next appeal to the Dean. In situations where the student feels that such an appeal process might not be in the student's interest, counsel and assistance can be sought from the Office of the College Ombudsman and the Office of the Vice Provost.

(continued on next page)

Appendix I
Transitional B Master of Arts Degree (M.A.)
Science Education (SCIB/SCIC/SCIE/SCIP-TRAN)
Advising Checklist and Course Guidelines

Name:

Date of enrollment:

Advisor:

Science Content Area:

Course Guidelines

Prerequisite Requirements

30 credits in the science area of certification

One course in a foreign language¹

Course Requirements

Science Education Methods (9-12 points)

Field Experience (5 points)

Professional Education (7-9 points)

Disciplinary Courses (6 points)

Equity in Science Education Equity Courses (3 points)

Total: 34 points

1. Science Education Methods (9–12 points)*

Course	Points	Term Completed
MSTC4000. Science in Secondary School	3	
[Subject specific methods course]:		
[Middle school methods course]:		

* A Middle School extension to the initial license can be earned by completing 6 points of middle school methods classes (both Life and Physical Science)

2. Field Experience (5 points)

Course	Points	Term Completed
MSTC4363: Intro to Science Education Practice	3	
[Supervision/Internship – Fall]	2	

3. Professional Education (9 points)

Course	Points	Term Completed
[Literacy (required)]:	3	
[Special Education (required)]:	3	
Elective	3	

4. Disciplinary Courses (6 points)

Course	Points	Term Completed
	3	
	3	

5. Equity in Science Education Courses (3 points)

One course from the following:

Course	Points	Term Completed
MSTC4007: Teaching & Learning in Urban Science	3	
MSTC4042: Multicultural Science Ed as Content and Pedagogy	3	

6. Gateway Assessment

Master's Project Portfolio
Date submitted:

7. Other requirements that must be met before graduation:

Requirement	Date
NYS Teacher Exam – Liberal Arts & Science Test (LAST) Passing Score:	
NYS Teacher Exam – Assessment of Teaching Skills (ATS) Passing Score:	
NYS Teacher Exam – Content Specialty Test in your subject (CST) Passing score:	
Attendance at State approved workshop on Child Abuse	
Successful completion of a workshop on Violence Prevention	
Fingerprinting	

For additional information about this program, please contact the Peace Corps Office in the Office of Teacher Education (400 Russell Hall; 212-678-3502; <http://www.tc.columbia.edu/ote/>).

Footnotes:

¹The foreign language requirement can be met through one of three ways:

- 1 course in a foreign language;
- passing score on the CLEP examination; or
- speak a language other than English at home.

²Certification requirements are subject to change. Check the Teacher certification website: <http://www.highered.nysed.gov/tcert/certificate/reqeffective.htm> for the latest information.

³No credit may be transferred in to complete the M.A. degree, though prior class work may count towards certification requirements. Consult with your advisor for further information.