

**LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK**

DEPARTMENT OF MIDDLE & HIGH SCHOOL EDUCATION

CURRICULUM CHANGE

Name of Program and Degree Award: Masters of Science in Secondary Science Education, Science Education Sequence 2

Hegis Number: 0834

Program Code: 92094

Effective Term: Spring 2021

1. **Type of Change:** Change in Degree Requirements

2. **From:**

Science Education M.S.Ed. Program

This program leads to a master's degree in Science Education. Upon completion of additional requirements, candidates will be eligible to receive New York State Initial Certification to teach one or more of the following sciences at the level of adolescent education (Grades 7-12): biology, chemistry, earth science, general science, and physics.

To be eligible for the Science Education Master's Program, potential students must fall into one of the following categories:

Sequence 1: For candidates who have, or are eligible for, Initial Certification in subjects other than science and who seek certification as science teachers.

Sequence 2: For candidates who have completed at least 36 credits in biology, chemistry, geology, or physics, but who lack professional education coursework and who seek Initial Certification.

Sequence 3: For candidates who hold a valid Transitional B certificate in biology, chemistry, earth science, general science, or physics, Grades 7-12, from New York State.

Science Education Admission Requirements

1. Possess a bachelor's degree (or its equivalent) from an accredited college or university with an overall index of 3.0 or better.
2. Demonstrate the ability to successfully pursue graduate study. (Above-average achievement in academic work and in the teaching specialization is required).
3. Submission of scores on the Content Specialty Test (CST).
4. For Sequence 1 admission: An undergraduate science major or the equivalent and a minor in middle and high school education or the equivalent.
5. For Sequence 2 and 3 admission: At least 36 credits in biology, chemistry, geology, or physics. Matriculants may be asked to complete undergraduate and/or graduate prerequisite coursework in addition to degree requirements, based on the evaluation of their credentials by an adviser in the Science Education Program.
6. Satisfy appropriate voice, speech, and health standards.
7. Submit two letters of recommendation, at least one of which is from a college or university science instructor.
8. Personal interview.

Science Education Degree Requirements

Students must consult with an adviser in the Science Education Program before starting their master's program. During their first semester, matriculated students are required to plan their graduate program with an adviser in the Science Education Program. Students must complete one of the three sequences outlined below.

Curriculum

The curriculum for each sequence is distributed in four instructional modules as follows:

Sequence 2 (42-48 credits)**Core Education Sequence (18 credits):**

ESC 501	Psychological Foundations of Education	3cr
ESC 502	Historical Foundations of Education: A Multicultural Perspective	3cr
ESC 519	Teaching Science in Middle and High School	3cr.
ESC 529	Language and Literacies Acquisition in Secondary Education	3cr.
ESC 596	Student Teaching in the Middle and High School Grades	3cr.
ESC 612	Seminar in Secondary Student Teaching.	3cr.

Curriculum and Instruction (12 credits):

ESC 506	Special Needs Education in TESOL and Secondary Settings	3cr
ESC 755	Teaching the Historical Development of Science	3cr
ESC 767	The Museum as a Resource for Teaching Science	3cr
ESC 770	Methods of Teaching Science in Secondary Schools:	4cr

Selected Topics
ESC 767: Or equivalent.

Research and Culmination Projects (6 credits):

ESC 705	Method of Educational Research	3cr
ESC 706	Project Seminar I	1cr
ESC 707	Project Seminar II	2cr
	or	
ESC 705	Method of Educational Research	3cr
	And	
ESC 708	Project Seminar in Curriculum, Materials, and Assessment in Specialized Areas	3cr

Graduate Science Content (6-12 credits):

Science content course requirements must align with undergraduate science preparation and with intended certification subject area. Consult with an adviser in the Science Education Program for the appropriate course(s) to satisfy this requirement. Such courses may include but are not limited to:

Biology

BIO 501	Topics in Genetics.	4cr
BIO 502	Topics in Economic Botany	4cr

Chemistry

CHE 545	Advanced Inorganic Chemistry	3cr
CHE 544	Biochemistry	3cr
CHE 548	Special Topics in Modern Organic Chemistry	3cr

Geology:

GEO 501	Earth Processes	3cr
GEO 502	Earth History	3cr
GEO 503	Geologic Field Methods	3cr
AST 601	Astronomy of Solar Systems	4cr.

Physics:

PHY 601	Advanced General Physics	3cr
PHY 605	Physics for Teachers	4cr
AST 601	Astronomy of Solar Systems	4cr
AST 602	Stellar Astronomy	4cr.

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Curriculum

The curriculum for each sequence is distributed in four instructional modules as follows:

Sequence 2 (42-48 credits)

Core Education Sequence (18 credits):

ESC 501	Psychological Foundations of Education	3cr
ESC 502	Historical Foundations of Education: A Multicultural Perspective	3cr
	or	
<u>ESC 713</u>	<u>Restorative Practices and Restorative Justice</u>	<u>3cr</u>
ESC 519	Teaching Science in Middle and High School	3cr.
ESC 529	Language and Literacies Acquisition in Secondary Education	3cr.
ESC 596	Student Teaching in the Middle and High School Grades	3cr.
ESC 612	Seminar in Secondary Student Teaching.	3cr.

Curriculum and Instruction (12 credits):

ESC 506	Special Needs Education in TESOL and Secondary Settings	3cr
<u>ESC 536</u>	<u>Teaching Technology Subjects in Middle and High School</u>	<u>3cr</u>
	or	
<u>ESC 537</u>	<u>Principles of Computer Science Education I</u>	<u>3cr</u>
ESC 767	The Museum as a Resource for Teaching Science	3cr
ESC 770	Methods of Teaching Science in Secondary Schools: Selected Topics	3cr

Research and Culmination Projects (6 credits):

ESC 705	Method of Educational Research	3cr
ESC 706	Project Seminar I	1cr
ESC 707	Project Seminar II	2cr
	or	
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	And	
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CHE 545	Advanced Inorganic Chemistry	3cr
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Geology:

GEO 501	Earth Processes	3cr
GEO 502	Earth History	3cr
GEO 503	Geologic Field Methods	3cr
AST 601	Astronomy of Solar Systems	4cr.

Physics:

PHY 601	Advanced General Physics	3cr
PHY 605	Physics for Teachers	4cr
AST 601	Astronomy of Solar Systems	4cr
AST 602	Stellar Astronomy	4cr.

4. Rationale:

ESC 755 was replaced with ESC 536 or ESC 537 (both technology/computer science courses) because it is critical in this educational landscape that teachers acquire the skills that are needed to incorporate various technologies in their instruction to enhance student learning, engagement and building of 21st century skills.

ESC 713 was added as an option because it is imperative that teachers have skills to mediate conflict and build a strong classroom/school culture.

5. Date of departmental approval: February 27, 2020