

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

**DEPARTMENT OF MIDDLE AND HIGH SCHOOL EDUCATION**

**CURRICULUM CHANGE**

1. **Type of change:** New Course

2.

Department(s)	Middle and High School Education
Career	<input type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Graduate
Academic Level	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial
Subject Area	Middle and High School Education
Course Prefix & Number	ESC 500
Course Title	Supervised Classroom Teaching for Special Programs
Description	One semester of supervised teaching of secondary education and TESOL P-12 candidates in sponsored alternative and provisional certification programs. Assigned in-school activities are required. (This course will use a Pass/Fail grading basis.) (May be repeated up to five times.)
Pre/ Co Requisites	Departmental permission
Credits	0
Hours	1-3
Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Course Attribute (e.g. Writing Intensive, WAC, etc)	Clinical Preparation Practicum Internship
General Education Component	<input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World

### **3. Rationale:**

We are proposing a new, zero-credit course designed specifically for candidates in sponsored programs who contractually require supervision and to address some problems with the current sponsored program system while enhancing the experiences for our alternative certification students. The new course will (1) Provide the structure for pedagogically enhanced communities of practice; (2) Reduce costs for the College; and (3) Solve the substantial problem of our candidates not having a student teaching experience imprinted on their official transcripts. To enhance the electronic, pedagogical coaching experience, we would like to organize communities of alternative teacher candidates into zero-credit seminars. In addition to having an experienced coach leading the seminars, creating communities of practice where teachers can share their challenges and successes among the group members is grounded in research and best practices.

The new course will also reduce the cost of the supervision/field consulting by about 50% from current levels because it will be a more efficient use of time and resources (This translates into one-fourth of a credit per student; in our traditional teacher education programs, on-site school visits are programmed as one-half credit per student). The current system includes pay for driving time, parking, and navigating individual middle and high schools throughout the Bronx and adjacent areas. We altered our coaching system from school-site visits to electronic videos and meetings to expand Lehman College's participation in the New York City Department of Education's sponsored programs across the five boroughs. These site visits are zero-credit experiences where we pay the coaches or "field consultants" an hourly rate using non-teaching adjunct hours. These coaching visits are required in the RFP contract CUNY signed as part of the New York City Teaching Fellows/Collaborative Programs and can potentially apply to future contracts with the NYCDOE and other entities.

Lastly, the current system means that many students graduate from the program without an official student teaching experience listed in their transcript. For our graduates, the consequences are that they are unable to transfer their teaching credentials to other states and are also ineligible for advanced education programs, such as adding an additional certification to their credentials.

### **4. Learning Outcomes (By the end of the course students will be expected to):**

- 1) Describe best practices related to the teaching of the subject matter.
- 2) Construct detailed lesson plans incorporating culturally responsive and sustaining pedagogy.
- 3) Videorecord themselves teaching the lessons to small and whole groups of adolescent or P-12 TESOL students.
- 4) Critically analyze the videos through the lens of teaching and learning standards.
- 5) Participate in pre-observation, observation, and post-observation coaching sessions.
- 6) Provide evidence of pedagogical improvements based on coaching feedback.

### **5. Date of Departmental Approval: August 26, 2024**

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

**DEPARTMENT OF MIDDLE AND HIGH SCHOOL EDUCATION**

**CURRICULUM CHANGE**

1. **Type of Change:** *Description, Pre-requisite*

2. **From:**

Department(s)	Middle and High School Education
Career	<input type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Graduate
Academic Level	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial
Subject Area	Education
Course Prefix & Number	ESC 742
Course Title	Research in Mathematics Education
Description	Review of the research literature; theories of learning mathematics; alternative assessment; technology in mathematics instruction. A research paper is required.
Pre/ Co Requisites	
Credits	3
Hours	3
Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Course Attribute (e.g. Writing Intensive, WAC, etc)	
General Education Component	<input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science  <input type="checkbox"/> Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World

**3. To:**

Department(s)	Middle and High School Education
Career	<input type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Graduate
Academic Level	<input checked="" type="checkbox"/> Regular <input type="checkbox"/> Compensatory <input type="checkbox"/> Developmental <input type="checkbox"/> Remedial
Subject Area	Education
Course Prefix & Number	ESC 742
Course Title	Research in Mathematics Education
Description	Review of the research literature <u>in mathematics education, including theories of learning mathematics, assessment, and use of technology.</u>
Pre/ Co Requisites	<u>PREREQ: Departmental permission</u>
Credits	3
Hours	3
Liberal Arts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Course Attribute (e.g. Writing Intensive, WAC, etc)	
General Education Component	<input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Required <input type="checkbox"/> English Composition <input type="checkbox"/> Mathematics <input type="checkbox"/> Science <input type="checkbox"/> Flexible <input type="checkbox"/> World Cultures <input type="checkbox"/> US Experience in its Diversity <input type="checkbox"/> Creative Expression <input type="checkbox"/> Individual and Society <input type="checkbox"/> Scientific World

**4. Rationale:**

These changes do not alter the learning outcomes but do allow for assignments other than a research paper to meet these same learning outcomes, in alignment with the national standards for mathematics education.

**5. Date of departmental approval: 2-15-2024**

**LEHMAN COLLEGE  
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CITY UNIVERSITY OF NEW YORK**

**DEPARTMENT OF MIDDLE AND HIGH SCHOOL EDUCATION**

**CURRICULUM CHANGE**

Name of Program and Degree Award: Mathematics 7-12, MSED

Hegis Number: 1701.01

Program Code: 25827

Effective Term: Fall 2025

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

2. **From:**

**Mathematics 5-9 and 7-12, MSED**

The graduate program for middle and high school mathematics teachers leads to a Master of Science in Education degree. Registered with the State Education Department, this program leads to both initial and professional certification to teach mathematics in grades 5-9 or 7-12, provided all other requirements have been satisfied. Applicants will apply for one of 6 sequences based on their qualifications:

**Sequence 1 (37–42 credits):** Non-math majors: For liberal arts and sciences graduates who have completed 18 credits in mathematics, including Calculus I and Calculus II, but lack professional education coursework, who seek certification ~~as mathematics teachers~~ in grades 5-9.

**Sequence 2 (44–49 credits):** Non-math majors: For liberal arts and sciences graduates who do not hold a bachelor's degree in mathematics but who have completed 45 credits in mathematics, including Statistics, Calculus I, Calculus II, Linear Algebra, and History of Mathematics, ~~but who~~ lack professional education coursework and seek certification ~~as mathematics teachers~~ in grades 7-12.

**Sequence 3 (37–42 credits):** Math majors: For candidates who hold a bachelor's degree in mathematics ~~only~~, but lack professional education coursework, who seek certification ~~as mathematics teachers~~ in grades 7-12.

**Sequence 4 (30–33 credits):** Math majors; ~~For candidates~~ with an education minor. For candidates who hold a bachelor's degree in mathematics ~~only~~, and completed relevant professional education coursework, who seek certification ~~as mathematics teachers~~ in grades 7-12.

**Sequence 5 (42 credits):** Math majors: For candidates who hold a bachelor's degree in mathematics and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7-12.

**Sequence 6 (45 credits):** Math majors: For Residency Program candidates who hold a bachelor's degree in mathematics and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7-12.

## Requirements

### Masters Requirements - Admission Requirements

**Type:** Completion requirement

1. A bachelor's degree (or its equivalent) from an accredited college or university with an overall index of 3.0 or better.
2. For Sequence 1, Mathematics course work of at least 18 credits that include Calculus I and II, with an overall index of 3.0 or better in all mathematics courses taken.
3. For Sequence 2, Mathematics course work to include Statistics; Calculus I; Calculus II; Linear Algebra; and History of Mathematics; with an overall index of 3.0 or better in all mathematics courses taken.
4. For Sequence 3, Mathematics major
5. For Sequence 4, ~~candidate will present evidence of meeting~~ the NYS core requirements in educational psychology, educational foundations, literacy, technology, and special education, including supervised field experiences.
6. For Sequence 5: Mathematics major and Mathematics coursework to include Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics.
7. For Sequence 6, submit passing scores on the New York State Content Specialty Tests (CSTs) in Mathematics and Students with Disabilities.
8. If conditionally admitted, make up requirements starting in the first semester and finishing in no more than three consecutive semesters.
9. Two letters of recommendation, at least one of which is from a college or university instructor of mathematics.
10. A 500-word essay on career goals.
11. A personal interview.

### Masters Requirements - Overall

**Type:** Completion requirement

**Earn at least 30 credits**

Masters Requirements - Sequence 1

**Type:** Completion requirement

**Fulfill ALL of the following requirements:**

**Core Education**

**Earn at least 16 credits from the following:**

- ESC 501 - Psychological Foundations of Education
- ESC 502 - Historical Foundations of Education: A Multicultural Perspective
- ESC 506 - Special Needs Education in TESOL and Secondary Settings
- ESC 532 - Teaching Mathematics in Middle and High School
- ESC 595 - Internship in Classroom Teaching  
**AND** ESC 612 - Seminar in Secondary Student Teaching
- ESC 596 - Student Teaching in the Middle and High School Grades  
**AND** ESC 612 - Seminar in Secondary Student Teaching

**Pedagogical Content in Mathematics Education**

**Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10
- ESC 742 - Research in Mathematics Education
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School

**Mathematics**

**Complete ALL of the following Courses:**

- MAT 601 - Secondary School Mathematics from an Advanced Standpoint
- MAT 602 - Introduction to Number Theory and Modern Algebra I
- MAT 655 - Exploring Mathematics Using Technology
- MAT 661 - History of Mathematics

**Culminating Experience**

**~~Fulfill ANY of the following requirements:~~**

**~~Complete ALL of the following Courses:~~**

- ~~• ESC 706 - Project Seminar I~~
- ESC 707 - Project Seminar II

**~~Comprehensive Examination~~**

- ~~• A comprehensive written examination or research project after all course work has been completed. Students who elect to conduct a research project must enroll in 3 additional credits of research-related course work.~~

Masters Requirements - Sequence 2

**Type:** Completion requirement

**Fulfill ALL of the following requirements:**

**Core Education**

**Earn at least 16 credits from the following:**

- ESC 501 - Psychological Foundations of Education
- ESC 502 - Historical Foundations of Education: A Multicultural Perspective
- ESC 506 - Special Needs Education in TESOL and Secondary Settings
- ESC 532 - Teaching Mathematics in Middle and High School
- ESC 595 - Internship in Classroom Teaching  
**AND** ESC 612 - Seminar in Secondary Student Teaching
- ESC 596 - Student Teaching in the Middle and High School Grades  
**AND** ESC 612 - Seminar in Secondary Student Teaching

**Pedagogical Content in Mathematics Education**

**Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10
- ESC 742 - Research in Mathematics Education
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School
- ESC 749 - Teaching Mathematics in Grades 11 and 12

**Mathematics**



**Complete ALL of the following Courses:**

- MAT 601 - Secondary School Mathematics from an Advanced Standpoint
- MAT 604 - Application of the Real and Complex Number Systems
- MAT 637 - Topics in Discrete Mathematics
- MAT 655 - Exploring Mathematics Using Technology
- MAT 615 - Modern Algebra

**Culminating Experience**

~~Fulfill ANY of the following requirements:~~

~~Complete ALL of the following Courses:~~

- ~~• ESC 706 - Project Seminar I~~
- ~~• ESC 707 - Project Seminar II~~

~~Students who elect to write a Master's thesis must concurrently enroll in the above courses.~~

~~Comprehensive Examination~~

- ~~• A comprehensive written examination or research project after all course work has been completed. Students who elect to conduct a research project must enroll in 3 additional credits of research-related course work.~~

Masters Requirements - Sequence 3

**Type:** Completion requirement

**Fulfill ALL of the following requirements:**

**Core Education**

**Earn at least 16 credits from the following:**

- ESC 501 - Psychological Foundations of Education
- ESC 502 - Historical Foundations of Education: A Multicultural Perspective
- ESC 506 - Special Needs Education in TESOL and Secondary Settings
- ESC 532 - Teaching Mathematics in Middle and High School
- ESC 595 - Internship in Classroom Teaching  
**AND** ESC 612 - Seminar in Secondary Student Teaching

- ESC 596 - Student Teaching in the Middle and High School Grades  
**AND** ESC 612 - Seminar in Secondary Student Teaching

**Pedagogical Content in Mathematics Education**

**Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10
- ESC 742 - Research in Mathematics Education
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School
- ESC 749 - Teaching Mathematics in Grades 11 and 12

**Mathematics**

**Earn at least 9 credits**

- Three graduate electives in mathematics chosen in consultation with a program adviser.

**Culminating Experience**

~~Fulfill ANY of the following requirements:~~

~~Complete ALL of the following Courses:~~

- ~~• ESC 706 - Project Seminar I~~
- ~~• ESC 707 - Project Seminar II~~

~~Students who elect to write a Master's thesis must concurrently enroll in the above courses.~~

~~**Comprehensive Examination**~~

- ~~• A comprehensive written examination or research project after all course work has been completed. Students who elect to conduct a research project must enroll in 3 additional credits of research-related course work.~~

Masters Requirements - Sequence 4

**Type:** Completion requirement

**Fulfill ALL of the following requirements:**

**Core Education Sequence (21 credits):**

Credits

ESC 532	Teaching Mathematics in Middle and High School	3
ESC 740	Teaching Mathematics in Grades 7-10	3
ESC 742	Research in Mathematics Education	3
ESC 748	Teaching Problem Solving in Mathematics in Middle and High School	3
ESC 749	Teaching Mathematics in Grades 11 and 12	3
ESC 595	Internship in Classroom Teaching	3
	Or	
ESC 596	Student Teaching in the Middle and High School Grades	3
ESC 612	Seminar in Secondary Student Teaching	3

**Mathematics (9 credits):**

Three or four graduate electives in mathematics chosen in consultation with a program adviser.

**~~Research and Culmination Projects (0-3 credits):~~**

Credits

<del>ESC 706</del>	<del>Project Seminar I</del>	<del>4</del>
<del>ESC 707</del>	<del>Project Seminar II</del>	<del>2</del>

~~Students who elect to write a Master's thesis must concurrently enroll in the above courses.~~

**~~Comprehensive Examination~~**

- ~~• A comprehensive written examination (0 credits) or research project (3 credits) after all course work has been completed. Students who elect to conduct a~~

~~research project must enroll in 3 additional credits of research-related course work.~~

Masters Requirements - Sequence 5

**Type:** Completion requirement

**Dual Certification in Mathematics Education and Teaching Students with Disabilities Generalist Grades 7-12 Option**

**Fulfill ALL of the following requirements:**

**Foundations Core**

**Complete ALL of the following Courses:**

- EDS 780 - Adolescent Development
- EDS 712 - The Adolescent with Disabilities
- EDS 714 - Curr&Instructional Pract Culturally&Linguistically Diverse Adolescents w/Disabilities Inclusive Set
- EDS 716 - Practicum in Curriculum&Instruction for Culturally&Linguistically Diverse Adolescents w/disabilities
- EDS 741 - Psycho-educational Evaluation of Children with Learning Problems
- EDS 743 - Behavioral Assessment, Management, and Change
- ESC 529 - Language and Literacies Acquisition in Middle & HS Education

**Pedagogical Core**

**Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School
- ESC 749 - Teaching Mathematics in Grades 11 and 12
- ESC 540 - Teaching ELA and Social Studies to Diverse Students in Secondary Schools
- ESC 541 - Teaching Math and Science to Diverse Students in Middle and High School

**Student Teaching**

**Complete ALL of the following Courses:**

- ESC 597 - Student Teaching in Inclusive Secondary Classrooms
- ESC 613 - Student Teaching and Project Seminar in Diverse and Inclusive Secondary Classrooms

Candidates with a bachelor's degree in mathematics with no relevant secondary education coursework and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7- 12.

- Candidates must have the following pre-requisite courses in mathematics: Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics.

Masters Requirements - Sequence 6

**Type:** Completion requirement

### **Dual Certification in Mathematics Education and Teaching Students with Disabilities Generalist Grades 7-12 Option**

**Fulfill ALL of the following requirements:**

#### **Foundations Core**

**Complete ALL of the following Courses:**

- EDS 780 - Adolescent Development
- EDS 712 - The Adolescent with Disabilities
- EDS 714 - Curr&Instructional Pract Culturally&Linguistically Diverse Adolescents w/Disabilities Inclusive Set
- EDS 716 - Practicum in Curriculum&Instruction for Culturally&Linguistically Diverse Adolescents w/disabilities
- EDS 741 - Psycho-educational Evaluation of Children with Learning Problems
- EDS 743 - Behavioral Assessment, Management, and Change
- ESC 529 - Language and Literacies Acquisition in Middle & HS Education

#### **Pedagogical Core**

**Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School
- ESC 749 - Teaching Mathematics in Grades 11 and 12

- ESC 540 - Teaching ELA and Social Studies to Diverse Students in Secondary Schools
- ESC 541 - Teaching Math and Science to Diverse Students in Middle and High School

## **Student Teaching**

### **Complete ALL of the following Courses:**

- ESC 596 – Student Teaching in Middle and High School Grades
- ESC 597 - Student Teaching in Inclusive Secondary Classrooms
- ESC 613 - Student Teaching and Project Seminar in Diverse and Inclusive Secondary Classrooms

Candidates with a bachelor's degree in mathematics with no relevant secondary education coursework and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7- 12.

- Candidates must have the following pre-requisite courses in mathematics: Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics.

## **Masters Requirements - Additional Certification Requirements**

### **Type:** Completion requirement

After fulfilling the Sequences 1 through 4-degree requirements including New York State distribution requirements in mathematics education, candidates are recommended for initial certification in Mathematics Education 5-9 or 7-12. To be eligible for certification in New York State, the candidate's TEACH account must include (a) an application for the Initial Mathematics Education (Grades 5-9 or Grades 7-12) certificate through the Approved Teacher Preparation Program pathway (b) the Lehman College recommendation; (c) passing scores on the following New York State examinations: Educating All Students (EAS), and Mathematics CST; and (d) the completed fingerprinting clearance. Please see adviser for more information.

In addition to the requirements above, Sequence 4-candidates will also need to complete (a) an application for the Initial Students with Disabilities Generalist 7-12 certificate through the Approved Teacher Preparation Program pathway (b) the Lehman College recommendation; and (c) passing scores on the Special Education Content Specialty Test.

In order to qualify for Professional Certification in Mathematics Education 5-9 or 7-12, in addition to the Master's degree, teachers must complete one year of mentored, full-time

teaching and two years of full-time teaching in a public or private school, which serves grades 5-9 or 7- 12, and must meet any additional New York State requirements.

Masters Requirements - Extension to the New York State Initial Certificate to Teach Mathematics in Grades 5-9

**Type:** Completion requirement

### **Extension Program in Mathematics Education**

**Fulfill ALL of the following requirements:**

#### **Admission Requirements**

- Possess New York State initial certification to teach mathematics in grades 5-9.
- Have at least two semesters of successful experience teaching mathematics in grades 7, 8, or 9; or one semester of supervised student teaching in mathematics in grades 7, 8, or 9 (with a grade of B or better).
- Mathematics coursework in Calculus I, Calculus II, Linear Algebra, Statistics, and History of Mathematics with a GPA of 3.0 or better.
- Submit two (2) letters of recommendation, at least one of which is from a college or university instructor of mathematics.
- Submit a 500-word essay on career goals.
- Participate in an interview.
- Meet additional departmental, divisional, and New York State requirements, if any.
- If conditionally admitted, make up requirements starting in the first semester and finishing in no more than three consecutive semesters.

#### **Continuation Requirements**

- Students must maintain a 3.0 grade point average throughout the course of study.

#### **Certificate Requirements**

The Extension Program in Mathematics Education consists of 17 credits, as outlined below. A minimum of a B average must be maintained throughout the course of the Program. All students are to consult with an adviser in Mathematics Education before starting the Program.

#### **Curriculum and Instruction**

**Complete ALL of the following Courses:**

- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School
- ESC 749 - Teaching Mathematics in Grades 11 and 12

### Mathematics Content

#### Complete ALL of the following Courses:

- MAT 604 - Application of the Real and Complex Number Systems
- MAT 615 - Modern Algebra
- MAT 637 - Topics in Discrete Mathematics

This program is designed for candidates who hold New York State initial certification to teach Mathematics in grades 5-9 (Middle Childhood Education) and wish to extend their certification to include grades 7-12 (Adolescent Education).

### 3. To:

#### Mathematics 5-9 and 7-12, MSED

The graduate program for middle and high school mathematics teachers leads to a Master of Science in Education degree. Registered with the State Education Department, this program leads to both initial and professional certification to teach mathematics in grades 5-9 or 7-12, provided all other requirements have been satisfied. Applicants will apply for one of 6 sequences based on their qualifications:

**Sequence 1 (40–42 credits):** Non-math majors: For liberal arts and sciences graduates who have completed 18 credits in mathematics, including Calculus I and Calculus II, who lack professional education coursework, and who seek mathematics certification, grades 5-9.

**Sequence 2 (47–49 credits):** Non-math majors: For liberal arts and sciences graduates who do not hold a bachelor's degree in mathematics but who have completed 18 credits in mathematics, including Statistics, Calculus I, Calculus II, Linear Algebra, and History of Mathematics, and who lack professional education coursework and seek mathematics certification, grades 7-12.

**Sequence 3 (40-42 credits):** Mathematics majors: For candidates who hold a bachelor's degree in mathematics, but lack professional education coursework, and who seek mathematics certification, grades 7-12.

**Sequence 4 (31-33 credits):** Mathematics majors with an education minor that meets NYS core requirements in educational psychology, educational foundations, literacy, technology, special education, and supervised field experiences; candidates seek mathematics certification, grades 7-12.



**Sequence 5 (42 credits):** Mathematics majors: For candidates who hold a bachelor's degree in mathematics and seek certification in Mathematics Education and Students with Disabilities (SWD), grades 7-12.

**Sequence 6 (45 credits):** Mathematics majors: For Residency Program candidates who hold a bachelor's degree in mathematics and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7-12.

## Requirements

### Masters Requirements - Admission Requirements

**Type:** Completion requirement

1. A bachelor's degree (or its equivalent) from an accredited college or university with an overall index of 3.0 or better.
2. For Sequence 1 (non-math majors): Mathematics course work of at least 18 credits that include Calculus I and II, with an overall index of 3.0 or better in all mathematics courses taken; candidates seek mathematics certification, grades 5-9.
3. For Sequence 2 (non-math majors): Mathematics course work to include Statistics; Calculus I; Calculus II; Linear Algebra; and History of Mathematics; with an overall index of 3.0 or better in all mathematics courses taken; candidates seek mathematics certification, grades 7-12.
4. For Sequence 3: mathematics majors who lack education coursework and who seek mathematics certification, grades 7-12.
5. For Sequence 4: mathematics major with an education minor that meets NYS core requirements in educational psychology, educational foundations, literacy, technology, special education, and supervised field experiences. Candidates seek mathematics certification, grades 7-12.
6. For Sequence 5: mathematics major and mathematics coursework to include Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics. Candidates seek certification in both Mathematics and Students With Disabilities (SWD).
7. For Sequence 6 (Residency Program candidates), mathematics major and submission of passing scores on the New York State Content Specialty Tests (CSTs) in both Mathematics and in Students with Disabilities (SWD).
8. If conditionally admitted, make up requirements starting in the first semester and finishing in no more than three consecutive semesters.
9. Two letters of recommendation, at least one of which is from a college or university instructor of mathematics.
10. A 500-word essay on career goals.

11. A personal interview.

Masters Requirements - Overall

**Type:** Completion requirement

**Earn at least 30 credits**

Masters Requirements - Sequence 1

**Type:** Completion requirement

**Fulfill ALL of the following requirements:**

**Core Education**

**Earn at least 16 credits from the following:**

**Credits**

- |  |            |
|--|------------|
| • ESC 501 - Psychological Foundations of Education                           | <u>3</u>   |
| • ESC 502 - Historical Foundations of Education: A Multicultural Perspective | <u>3</u>   |
| • ESC 506 - Special Needs Education in TESOL and Secondary Settings          | <u>3</u>   |
| • ESC 532 - Teaching Mathematics in Middle and High School                   | <u>3</u>   |
| • ESC 595 - Internship in Classroom Teaching                                 | <u>1-3</u> |
| <b>AND</b> ESC 612 - Seminar in Secondary Teaching                           | <u>3</u>   |
| • Or   |            |
| • ESC 596 - Student Teaching in the Middle and High School Grades            | <u>3</u>   |
| <b>AND</b> ESC 612 - Seminar in Secondary Teaching                           | <u>3</u>   |

**Pedagogical Content in Mathematics Education**

**Complete ALL of the following Courses:**

- |   |          |
|---|----------|
| • ESC 740 - Teaching Mathematics in Grades 7-10                               | <u>3</u> |
| • ESC 742 - Research in Mathematics Education                                 | <u>3</u> |
| • ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School | <u>3</u> |

**Mathematics**

**Complete ALL of the following Courses:**

- |  |          |
|--|----------|
| • MAT 601 - Secondary School Mathematics from an Advanced Standpoint | <u>3</u> |
|--|----------|

- MAT 602 - Introduction to Number Theory and Modern Algebra I 3
- MAT 655 - Exploring Mathematics Using Technology 2
- MAT 661 - History of Mathematics 4

### **Culminating Experience**

#### **Complete the following Course:**

- ESC 708 - Project Seminar in Curriculum, Materials, and Assessment in Specialized Areas 3

Masters Requirements - Sequence 2

**Type:** Completion requirement

#### **Fulfill ALL of the following requirements:**

#### **Core Education**

#### **Earn at least 16 credits from the following:**

#### **Credits**

- ESC 501 - Psychological Foundations of Education 3
- ESC 502 - Historical Foundations of Education: A Multicultural Perspective 3
- ESC 506 - Special Needs Education in TESOL and Secondary Settings. 3
- ESC 532 - Teaching Mathematics in Middle and High School. 3
- ESC 595 - Internship in Classroom Teaching 1-3  
**AND** ESC 612 - Seminar in Secondary Teaching 3
- ESC 596 - Student Teaching in the Middle and High School Grades 3  
**AND** ESC 612 - Seminar in Secondary Teaching 3

### **Pedagogical Content in Mathematics Education**

#### **Complete ALL of the following Courses:**

- ESC 740 - Teaching Mathematics in Grades 7-10 3
- ESC 742 - Research in Mathematics Education 3
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School 3
- ESC 749 - Teaching Mathematics in Grades 11 and 12. 3

**Mathematics****Complete ALL of the following Courses:**

- MAT 601 - Secondary School Mathematics from an Advanced Standpoint 3
- MAT 604 - Application of the Real and Complex Number Systems 3
- MAT 637 - Topics in Discrete Mathematics 4
- MAT 655 - Exploring Mathematics Using Technology 2
- MAT 615 - Modern Algebra 4

**Culminating Experience****Complete the following Course:**

ESC 708 - Project Seminar in Curriculum, Materials, and Assessment in Specialized Areas 3

Masters Requirements - Sequence 3

**Type:** Completion requirement

**Fulfill ALL of the following requirements:****Core Education****Earn at least 16 credits from the following:**

- ESC 501 - Psychological Foundations of Education 3
- ESC 502 - Historical Foundations of Education: A Multicultural Perspective 3
- ESC 506 - Special Needs Education in TESOL and Secondary Settings. 3
- ESC 532 - Teaching Mathematics in Middle and High School. 3
- ESC 595 - Internship in Classroom Teaching 1-3  
**AND** ESC 612 - Seminar in Secondary Teaching 3
- ESC 596 - Student Teaching in the Middle and High School Grades 3  
**AND** ESC 612 - Seminar in Secondary Teaching 3

## Pedagogical Content in Mathematics Education

### Complete ALL of the following Courses:

- ESC 740 - Teaching Mathematics in Grades 7-10 3
- ESC 742 - Research in Mathematics Education 3
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School 3
- ESC 749 - Teaching Mathematics in Grades 11 and 12. 3

## Mathematics

### Earn at least 9 credits

- Three graduate electives in mathematics chosen in consultation with a program adviser.

### Culminating Experience

#### Complete the following Course:

ESC 708 - Project Seminar in Curriculum, Materials, and Assessment in Specialized

#### Areas

3

Masters Requirements - Sequence 4

**Type:** Completion requirement

#### Fulfill ALL of the following requirements:

#### Core Education Sequence (19-21 credits):

		Credits
ESC 532	Teaching Mathematics in Middle and High School	3
ESC 740	Teaching Mathematics in Grades 7-10	3
ESC 742	Research in Mathematics Education	3
ESC 748	Teaching Problem Solving in Mathematics in Middle and High School	3
ESC 749	Teaching Mathematics in Grades 11 and 12	3
ESC 595	Internship in Classroom Teaching	<u>1-3</u>
	Or	
ESC 596	Student Teaching in the Middle and High School Grades	3

ESC 612

Seminar in Secondary Teaching

3

**Mathematics (9 credits):**

Three or four graduate electives in mathematics chosen in consultation with a program adviser.

**Complete the following Course:**

ESC 708 - Project Seminar in Curriculum, Materials, and Assessment in Specialized Areas

3

Masters Requirements - Sequence 5

**Type:** Completion requirement**Dual Certification in Mathematics Education and Teaching Students with Disabilities Generalist Grades 7-12 Option****Fulfill ALL of the following requirements:****Foundations Core****Complete ALL of the following Courses:**

- EDS 780 - Adolescent Development 3
- EDS 712 - The Adolescent with Disabilities 3
- EDS 714 - Curr&Instructional Pract Culturally&Linguistically Diverse Adolescents w/Disabilities Inclusive Set 3
- EDS 716 - Practicum in Curriculum&Instruction for Culturally&Linguistically Diverse Adolescents w/disabilities 3
- EDS 741 - Psycho-educational Evaluation of Children with Learning Problems 3
- EDS 743 - Behavioral Assessment, Management, and Change 3
- ESC 529 - Language and Literacies Acquisition in Middle & HS Education 3

**Pedagogical Core****Complete ALL of the following Courses:****Credits**

- ESC 740 - Teaching Mathematics in Grades 7-10 3
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and

- High School 3
- ESC 749 - Teaching Mathematics in Grades 11 and 12 3
- ESC 540 - Teaching ELA and Social Studies to Diverse Students in Secondary Schools 3
- ESC 541 - Teaching Math and Science to Diverse Students in Middle and High School 3

### **Student Teaching**

#### **Complete ALL of the following Courses:**

- ESC 597 - Student Teaching in Inclusive Secondary Classrooms 3
- ESC 613 - Student Teaching and Project Seminar in Diverse and Inclusive 3  
Secondary Classrooms

Candidates with a bachelor's degree in mathematics with no relevant secondary education coursework and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7- 12.

- Candidates must have the following pre-requisite courses in mathematics: Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics.

Masters Requirements - Sequence 6

**Type:** Completion requirement

### **Dual Certification in Mathematics Education and Teaching Students with Disabilities Generalist Grades 7-12 Option**

**Fulfill ALL of the following requirements:**

#### **Foundations Core**

**Complete ALL of the following Courses:**

- EDS 780 - Adolescent Development 3
- EDS 712 - The Adolescent with Disabilities 3
- EDS 714 – Curr & Instructional Pract Culturally&Linguistically Diverse Adolescents w/Disabilities Inclusive Set 3
- EDS 716 - Practicum in Curriculum & Instruction for Culturally & Linguistically Diverse Adolescents w/disabilities 3

- EDS 741 - Psycho-educational Evaluation of Children with Learning Problems 3
- EDS 743 - Behavioral Assessment, Management, and Change 3
- ESC 529 - Language and Literacies Acquisition in Middle & HS Education 3

### **Pedagogical Core**

#### **Complete ALL of the following Courses:**

#### **Credits**

- ESC 740 - Teaching Mathematics in Grades 7-10 3
- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School 3
- ESC 749 - Teaching Mathematics in Grades 11 and 12 3
- ESC 540 - Teaching ELA and Social Studies to Diverse Students in Secondary Schools 3
- ESC 541 - Teaching Math and Science to Diverse Students in Middle and High School 3

### **Student Teaching**

#### **Complete ALL of the following Courses:**

- ESC 596 – Student Teaching in Middle and High School Grades 3
- ESC 597 - Student Teaching in Inclusive Secondary Classrooms 3
- ESC 613 - Student Teaching and Project Seminar in Diverse and Inclusive Secondary Classrooms 3

Candidates with a bachelor's degree in mathematics with no relevant secondary education coursework and seek initial certification in Mathematics Education and Students with Disabilities (SWD) grades 7- 12.

- Candidates must have the following pre-requisite courses in mathematics: Statistics, Calculus I, Calculus II, Calculus III, Computer Methods, Linear Algebra, Probability, Geometry and History of Mathematics.

### **Masters Requirements - Additional Certification Requirements**

**Type:** Completion requirement



After fulfilling the Sequences 1 through 6 degree requirements including New York State distribution requirements in mathematics education, candidates are recommended for initial certification in Mathematics Education 5-9 or 7-12. To be eligible for certification in New York State, the candidate's TEACH account must include (a) an application for the Initial Mathematics Education (Grades 5-9 or Grades 7-12) certificate through the Approved Teacher Preparation Program pathway (b) the Lehman College recommendation; (c) passing scores on the following New York State examinations: Educating All Students (EAS), and Mathematics CST; and (d) the completed fingerprinting clearance. Please see adviser for more information.

In addition to the requirements above, Sequence 5 candidates will also need to complete (a) an application for the Initial Students with Disabilities Generalist 7-12 certificate through the Approved Teacher Preparation Program pathway (b) the Lehman College recommendation; and (c) passing scores on the Special Education Content Specialty Test.

In order to qualify for Professional Certification in Mathematics Education 5-9 or 7-12, in addition to the Master's degree, teachers must complete one year of mentored, full-time teaching and two years of full-time teaching in a public or private school, which serves grades 5-9 or 7-12, and must meet any additional New York State requirements.

Masters Requirements - Extension to the New York State Initial Certificate to Teach Mathematics in Grades 5-9

**Type:** Completion requirement

### **Extension Program in Mathematics Education**

**Fulfill ALL of the following requirements:**

#### **Admission Requirements**

- Possess New York State initial certification to teach mathematics in grades 5-9.
- Have at least two semesters of successful experience teaching mathematics in grades 7, 8, or 9; or one semester of supervised student teaching in mathematics in grades 7, 8, or 9 (with a grade of B or better).
- Mathematics coursework in Calculus I, Calculus II, Linear Algebra, Statistics, and History of Mathematics with a GPA of 3.0 or better.
- Submit two (2) letters of recommendation, at least one of which is from a college or university instructor of mathematics.
- Submit a 500-word essay on career goals.
- Participate in an interview.
- Meet additional departmental, divisional, and New York State requirements, if any.

- If conditionally admitted, make up requirements starting in the first semester and finishing in no more than three consecutive semesters.

### **Continuation Requirements**

- Students must maintain a 3.0 grade point average throughout the course of study.

### **Certificate Requirements**

The Extension Program in Mathematics Education consists of 17 credits, as outlined below. A minimum of a B average must be maintained throughout the course of the Program. All students are to consult with an adviser in Mathematics Education before starting the Program.

### **Curriculum and Instruction**

#### **Complete ALL of the following Courses:**

- ESC 748 - Teaching Problem Solving in Mathematics in Middle and High School 3
- ESC 749 - Teaching Mathematics in Grades 11 and 12 3

### **Mathematics Content**

#### **Complete ALL of the following Courses:**

- MAT 604 - Application of the Real and Complex Number Systems 3
- MAT 615 - Modern Algebra 4
- MAT 637 - Topics in Discrete Mathematics 4

This program is designed for candidates who hold New York State initial certification to teach Mathematics in grades 5-9 (Middle Childhood Education) and wish to extend their certification to include grades 7-12 (Adolescent Education).

#### **4. Rationale:**

In our program, the ESC 708 master's project is replacing ESC 706-707 (research paper project or comprehensive exam). While this will not alter the program's learning outcomes, the 708 project-based assessment aligns more closely with national standards for mathematics teachers. It also allows candidates to demonstrate their knowledge, skills, and dispositions in ways that better reflect actual classroom teaching.

We made minor changes in sequence descriptions for clarity and consistency. We also corrected errors in the total number of credits listed for Sequences 1-4 and we corrected the minimum number of math credits for Sequence 2 (from 15 to 18). The actual number of credits, however, does not change for any of these Sequences.

Finally, we added the credits next to each course listed in the sequences to make this clearer for students.

5. **Date of departmental approval:** 02-15-2024