

MATHEMATICS SPECIALIST LEADER IN EDUCATION (MSLE)

600 Level Courses

MSLE 621: *Number Systems, Operations and Number Theory for K-8 Mathematics Leaders.* 3 credits.

Connects mathematics content with the ways mathematics leaders use broadly integrated knowledge to support teacher and student mathematics learning. Explores number systems, operations, and number theory concepts using multiple representations, routines, and historical-cultural connections. Engages educators in designing, implementing, and reflecting on research-informed tasks and routines that develop student reasoning, deepen understanding, and strengthen mathematics pedagogy across K-8 classrooms. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 622: *Rational Numbers and Proportional Reasoning for K-8 Mathematics Leaders.* 3 credits.

Connects mathematics content with the ways mathematics leaders use broadly integrated knowledge to support teacher and student mathematics learning. Explores number systems, operations, and proportional reasoning using multiple representations and real-world contexts, examining rational numbers, place value, and quantitative reasoning. Engages educators in designing and implementing research-informed routines that promote number sense, mathematical reasoning, and discourse across K-8 classrooms. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 623: *Algebra, Patterns and Functions for K-8 Mathematics Leaders.* 3 credits.

Connects mathematics content with the ways mathematics leaders use broadly integrated knowledge to support teacher and student mathematics learning. Explores algebraic concepts, patterns, and functions through multiple representations and real-world modeling. Engages educators in designing and facilitating cognitively demanding tasks that connect algebraic reasoning, promote mathematical discourse, and build leadership across K-8 classrooms. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 624: *Probability, Statistics, and Data Literacy for K-8 Mathematics Leaders.* 3 credits.

Connects mathematics content with the ways mathematics leaders use broadly integrated knowledge to support teacher and student mathematics learning. Explores statistical variability, probability, and data representation using investigation, modeling, and interpretation to support reasoning about randomness, distributions, and simulations. Engages educators in integrating mathematical practices and community collaboration to promote data-informed instruction, strengthen cross-content connections, and support K-8 mathematics learning. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 625: *Geometry and Measurement for K-8 Mathematics Leaders.* 3 credits.

Connects mathematics content with the ways mathematics leaders use broadly integrated knowledge to support teacher

and student mathematics learning. Explores geometric concepts and measurement using hands-on investigation and reasoning, examining Euclidean principles, transformations, congruence, similarity, and spatial visualization. Engages educators in eliciting and examining student thinking, connecting representations, and implementing tasks that promote reasoning and problem solving. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 631: *Mathematics Coaching and Instructional Leadership for School Improvement*. 3 credits.

Connects mathematics leadership with the ways educators apply content knowledge and pedagogical expertise to support teacher and student learning. Explores strategies for mentoring and coaching teachers through co-teaching and coaching cycles, examining approaches that foster instructional change and support diverse learners. Engages educators in planning and implementing co-teaching/coaching cycles that strengthen mathematics teaching, learning, and leadership across school contexts. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 632: *Leadership in Mathematics Assessment and Learning*. 3 credits.

Connects mathematics leadership with the ways educators apply content knowledge and pedagogical expertise to support teacher and student learning. Explores strategies for assessing student understanding across mathematical learning progressions, developing the ability to analyze thinking and use evidence to guide instruction. Engages educators in partnering with teachers to analyze student learning and plan instruction that strengthens mathematics teaching and learning. Offered by

School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 633: *Instructional Leadership in Mathematics Curriculum and Teacher Development*. 3 credits.

Connects mathematics leadership with the ways educators apply content knowledge and pedagogical expertise to support teacher and student learning. Explores strategies for selecting and adapting mathematics instructional materials and technologies, and designing professional learning that supports students and informs instruction. Engages educators in Lesson Study to plan, implement, and reflect on mathematics instruction that strengthens teacher development and school improvement. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

MSLE 634: *Research-Informed Professional Learning for Mathematics Leadership*. 3 credits.

Connects mathematics leadership with the ways educators apply content knowledge and pedagogical expertise to support teacher and student learning. Explores current curriculum trends in mathematics education, developing skills to design, lead, and evaluate research-informed professional learning with school-based administrators to improve teaching and learning. Engages educators in developing leadership skills to support professional learning as mathematics leaders. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

700 Level Courses

MSLE 740: *Internship in Mathematics Education Leadership*. 3 credits.

Connects mathematics leadership with the ways educators apply content knowledge and pedagogical expertise to support teacher and student learning. Explores reflective inquiry to strengthen instructional leadership in mathematics education, building capacity to synthesize and apply mathematics content, pedagogy, and leadership in authentic school contexts. Engages educators in collaborating with K-8 constituents to advance research-informed practices that support school community goals. Offered by School of Education (<https://catalog.gmu.edu/colleges-schools/education-human-development/school-education/>). May not be repeated for credit.

Recommended Prerequisite: Admission into the K-8 Mathematics Specialist Leadership Program or program permission. This course is taken within the last two semesters of the program or with special permission from the program.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non-Degree.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)