MAED 205. Math as a Second Language. 3 Credits.
Deep conceptual understanding of the operations of arithmetic and interrelationships among arithmetic, algebra, and geometry; applications to the K-8 classroom. Prerequisite: Teacher license.

MAED 210. Functions/Algebra for Teaching. 3 Credits.
Functions, graphs, inverse functions, linear functions, straight lines, linear equations and inequalities, and applications; applications to the K-8 classroom. Prerequisite: MAED 205.

MAED 215. Trig/Algebra for Teachers II. 3 Credits.
Similar triangles, trigonometric functions, applications to measurement, periodic phenomena; quadratic functions; applications to the K-8 classroom. Prerequisites: MAED 205 and MAED 210.

MAED 220. Measure/Probabil for Teachers. 3 Credits.
Measurement (length, area and volume), probability, application to problem solving, and the ways in which these concepts develop across the K-12 curriculum. Prerequisites: MAED 205, MAED 210, and MAED 215.

MAED 225. Number Theory for Teachers. 3 Credits.
Division algorithm, prime numbers, fundamental theorem of arithmetic, factors and multiples, number bases, arithmetic progressions; emphasis on how number theory is taught in grades K-8. Prerequisites: MAED 205, MAED 210, and MAED 215.

MAED 230. Alg/Geom for Teachers III. 3 Credits.
Exponents, compound interest, exponential functions, logarithms, the base e, growth and decay, research in mathematics education and K-8 curriculum projects. Prerequisites: MAED 205, MAED 210, and MAED 215.

MAED 235. Calculus for Teachers I. 3 Credits.

MAED 240. Calculus for Teachers II. 3 Credits.
Continued study of calculus and its relationship to the K-8 curriculum. Topics include infinite series, calculating area, the definite integral, Fundamental Theorem of Calculus. Prerequisite: MAED 235.

MAED 300. Statistics & Research I. 3 Credits.
Introduction to statistics with emphasis on research in K-8 education. Representing and summarizing data, measures of relationship between variables, inference from sample data to population. Prerequisites: MAED 205, MAED 210, and MAED 215.

MAED 305. Statistics & Research II. 3 Credits.
Error bars in graphs, margins of error in surveys, and confidence intervals; interpret and critique educational research studies; analysis of school assessment data activities. Prerequisite: MAED 300.

MAED 310. Statistics & Research III. 3 Credits.
Regression, chi-square analysis, design of research studies, reading of research on K-8 instructional practice, design action research project. Pre/co-requisites: MAED 305, or Prerequisite: MAED 305.

MAED 315. Capstone VMI Experience. 3 Credits.
This course concludes the VMI’s school-based-research component. Teachers synthesize their coursework and field experiences and revisit key mathematical concepts from arithmetic through calculus. Prerequisite: 30 hours MAED courses.