



**ELEMENTARY MATHEMATICS CONCENTRATION FORM**

*30 credit degree program*

*(12 credits of Core courses, 18 credits of Concentration courses)*

<p align="center"><b>Core Courses: 12 credits</b> <i>Required for all ASTL M.Ed. students</i></p>	<p align="center"><b>Credit Hours</b></p>
<p><b><u>EDUC 612: Inquiry into Practice</u></b> Provides experience using research skills to foster systematic and thoughtful inquiry into classroom practice. Explores relevant classroom practice issues through critical writing, action, and research. Emphasizes cultural diversity and gender issues in research.</p>	<p align="center">2</p>
<p><b><u>EDUC 613: How Students Learn</u></b> Advanced course in study of learning based on research and theory from different disciplines. Focuses on increasing students' learning through study of different learning systems, and understanding each learner in context of learning process itself.</p>	<p align="center">3</p>
<p><b><u>EDUC 614: Designing and Assessing Teaching and Learning</u></b> Explores design and development of curricular, pedagogical, and assessment strategies responsive to needs and interests of students. Investigates factors that affect teaching and learning, and examines multiple ways of knowing that teachers bring to classrooms.</p>	<p align="center">3</p>
<p><b><u>EDUC 606: Education and Culture</u></b> Uses cultural inquiry process (CIP) and web site to acquire cultural, social, and language-related perspectives on educational processes; and teaches skills to analyze educational settings and expand strategies to address puzzlements in students' own practice.</p>	<p align="center">3</p>
<p><b><u>EDUC 615: Educational Change</u></b> Explores influences on educational change at classroom, school, community, state, and national levels. Investigates implications of factors and influences that affect educational change. Analyzes influences and factors, and involves students in reflecting on their own experiences.</p>	<p align="center">2</p>

Elementary Mathematics Concentration Courses: 15 credits	Credit Hours
<p><b><u>MATH 610: Number Systems and Number Theory for K-8 Teachers</u></b>  This course covers the topics: ways of representing numbers, relationships between numbers, number systems, the meanings of operations and how they relate to one another, and computation within the number system as a foundation for algebra. It also includes episodes in history and development of the number system, and will examine the developmental sequence and learning trajectory as children learn this material.</p>	3
<p><b><u>MATH 611: Geometry and Measurement for K-8 Teachers</u></b>  The course explores the foundations of informal measurement and geometry 'in one, two, and three dimensions. The van Hiele model for geometric learning is used as a framework for how children build their understanding of length, area, volume, angles, and geometric relationships. Visualization, spatial reasoning, and geometric modeling are stressed. As appropriate, transformational geometry, congruence, similarity, and geometric constructions will be discussed.</p>	3
<p><b><u>MATH 612: Probability and Statistics for K-8 Teachers</u></b>  An introduction to probability, descriptive statistics, and data analysis. Topics studied will include the exploration of randomness, data representation, modeling. Descriptive statistics will include measures of central tendency, dispersion, distributions, and regression. The analysis of experiments requiring hypothesizing, experimental design and data gathering will also be discussed.</p>	3
<p><b><u>MATH 613: Algebra and Functions for K-8 Teachers</u></b>  The course will examine representing and analyzing mathematical situations and structures using generalization and algebraic symbols and reasoning. Attention will be given to the transition from arithmetic to algebra, working with quantitative change, and the description of and prediction of change.</p>	3
<p><b><u>MATH 614: Rational Numbers and Proportional Reasoning for K-8 Teachers</u></b>  This course will cover the basic number strands in fractions and rational numbers, decimals and percents, and ratios and proportions in the school curriculum. Instruction will cover interpretations, computations, and estimation with a coordinated program of activities that develop both rational number concepts and skills and proportional reasoning.</p>	3
<p><b>Concentration Electives: 3 credits</b>  <b>Select one course from the options below</b></p>	
<p><b><u>EDCI 645: Curriculum Development in Mathematics Education</u></b>  Analysis, design, and evaluation of school mathematics curricula.</p>	3

<p><b><u>EDCI 646: Mathematics Education Leadership for School Change</u></b>          Surveys current literature and large-scale studies in mathematics education. Engages students in research, study, and discussion of factors that affect teaching and learning of mathematics in school settings.</p>	3
<p><b><u>EDCI 666: Research in Mathematics Teaching</u></b>          Explores curricula, current issues, and research literature in elementary school mathematics. Emphasizes development of different styles of teaching.</p>	3
<b>PROGRAM EXIT REQUIREMENT</b>	
<p><b>Professional Development Portfolio:</b> A performance-based portfolio that provides evidence of a teacher's teacher professional learning and development throughout the ASTL program. The portfolio is presented the last spring semester of a student's program.</p>	NA



College of Education and Human Development  
**Advanced Studies in Teaching and Learning (ASTL)**

Dr. Stephanie Dodman ([sdodman@gmu.edu](mailto:sdodman@gmu.edu))

Dr. Nancy Holincheck ([nholinch@gmu.edu](mailto:nholinch@gmu.edu))

ASTL Academic Program Coordinators

**Advisor and Support Contact List**

Concentration	Advisor	Email	Phone
Designing Digital Learning in Schools	Dr. Dawn Hathaway	<a href="mailto:dhathawa@gmu.edu">dhathawa@gmu.edu</a>	(703) 993-2019
Early Childhood Education	Dr. Julie Kidd	<a href="mailto:jkidd@gmu.edu">jkidd@gmu.edu</a>	(703) 993-8325
Foreign Languages (Spanish & French)	Dr. Rebecca Fox <i>Dr. Jenny Leeman*</i> <i>Dr. Christy Pichichero*</i>	<a href="mailto:rfox@gmu.edu">rfox@gmu.edu</a> <a href="mailto:jleeman@gmu.edu">jleeman@gmu.edu</a> <a href="mailto:cpichich@gmu.edu">cpichich@gmu.edu</a>	(703) 993-4123
Gifted Child Education	Dr. Nancy Holincheck	<a href="mailto:nholinch@gmu.edu">nholinch@gmu.edu</a>	(703) 993-8136
History	Dr. Mark Helmsing <i>Dr. Brian Platt*</i>	<a href="mailto:mhelmsin@gmu.edu">mhelmsin@gmu.edu</a> <a href="mailto:bplatt1@gmu.edu">bplatt1@gmu.edu</a>	(703) 993-2384 (703) 993-1253
Individualized	Dr. Nancy Holincheck	<a href="mailto:nholinch@gmu.edu">nholinch@gmu.edu</a>	(703) 993-8136
International Baccalaureate	Marie Champagne	<a href="mailto:mchampa4@gmu.edu">mchampa4@gmu.edu</a>	(703) 993-3173
Literacy: Reading Specialist	Dr. Jennifer Hathaway	<a href="mailto:jhathaw2@gmu.edu">jhathaw2@gmu.edu</a>	(703) 993-5789
Literacy: PreK-12 Classroom	Dr. Jennifer Hathaway	<a href="mailto:jhathaw2@gmu.edu">jhathaw2@gmu.edu</a>	(703) 993-5789
Elementary Mathematics	Dr. Courtney Baker	<a href="mailto:cbaker@gmu.edu">cbaker@gmu.edu</a>	(703) 993-5081
Physical Education	Dr. Dominique Banville	<a href="mailto:dbanvill@gmu.edu">dbanvill@gmu.edu</a>	(703) 993-3579
Science	Dr. Nancy Holincheck	<a href="mailto:nholinch@gmu.edu">nholinch@gmu.edu</a>	(703) 993-8136
Special Education	Kelly Severo Jancy Templeton	<a href="mailto:ksevero@gmu.edu">ksevero@gmu.edu</a> <a href="mailto:jtemple1@gmu.edu">jtemple1@gmu.edu</a>	(703) 993-4361 (703) 993-2387
Teacher Leadership	Dr. Stephanie Dodman <i>Dr. Farnoosh Shahrokhi*</i>	<a href="mailto:sdodman@gmu.edu">sdodman@gmu.edu</a> <a href="mailto:fshahrok@gmu.edu">fshahrok@gmu.edu</a>	(703) 993-3841 (703) 993-2009
ASTL Core Advisors	Dr. Stephanie Dodman Dr. Nancy Holincheck	<a href="mailto:sdodman@gmu.edu">sdodman@gmu.edu</a> <a href="mailto:nholinch@gmu.edu">nholinch@gmu.edu</a>	(703) 993-3841 (703) 993-8136
APTDIE Coordinator of Student Services	Marie Champagne	<a href="mailto:mchampa4@gmu.edu">mchampa4@gmu.edu</a>	(703) 993-3173
APTDIE Support Manager	Felicita Minionis	<a href="mailto:fminioni@gmu.edu">fminioni@gmu.edu</a>	(703) 993-2794
Administrative Support Manager	Rose Saunders	<a href="mailto:rsaunder@gmu.edu">rsaunder@gmu.edu</a>	(703) 993-3640
ASTL program (general)		<a href="mailto:astl@gmu.edu">astl@gmu.edu</a>	
ASTL program website		<a href="https://gse.gmu.edu/advance-d-teaching-studies/">https://gse.gmu.edu/advance-d-teaching-studies/</a>	
ASTL Facebook page		<a href="https://www.facebook.com/ASTLProgramGMU/">https://www.facebook.com/ASTLProgramGMU/</a>	

\* *Liaison Contact for Departmental Advising*