



**MATHEMATICS K-8 CONCENTRATION
COURSE SHEET**

30 credit degree program

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

Core Courses: 12 credits <i>Required for all ASTL M.Ed. students</i>	Credit Hours
<u>EDUC 612: Inquiry into Practice</u> 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.	2
<u>EDUC 613: How Students Learn</u> 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.	3
<u>EDUC 614: Designing and Assessing Teaching and Learning</u> 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.	2
<u>EDUC 606: Education and Culture</u> 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.	3
<u>EDUC 615: Educational Change</u> 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.	2

Elementary Mathematics Concentration Courses: 15 credits	Credit Hours
<p><u>MATH 610: Number Systems and Number Theory for K-8 Teachers</u> 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><u>MATH 611: Geometry and Measurement for K-8 Teachers</u> 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><u>MATH 612: Probability and Statistics for K-8 Teachers</u> 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><u>MATH 613: Algebra and Functions for K-8 Teachers</u> 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><u>MATH 614: Rational Numbers and Proportional Reasoning for K-8 Teachers</u> 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 align="center">Concentration Electives: 3 credits Select one course from the options below</p>	
<p><u>EDCI 645: Curriculum Development in Mathematics Education</u> Analysis, design, and evaluation of school mathematics curricula.</p>	3

<p><u>EDCI 646: Mathematics Education Leadership for School Change</u> 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><u>EDCI 666: Research in Mathematics Teaching</u> Explores curricula, current issues, and research literature in elementary school mathematics. Emphasizes development of different styles of teaching.</p>	3
PROGRAM EXIT REQUIREMENT	
<p>Professional Development Portfolio: 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



Advanced Studies in Teaching and Learning (ASTL)

Division of Advanced Professional Teacher Development and International Education
College of Education and Human Development

Dr. Stephanie Dodman (sdodman@gmu.edu)

Dr. Nancy Holincheck (nholinch@gmu.edu)

ASTL Academic Program Coordinators

Advisor and Support Contact List

Concentration	Advisor	Email	Phone
Designing Digital Learning in Schools	Dr. Dawn Hathaway	dhathawa@gmu.edu	(703) 993-2019
Diversity and Exceptionality in PK-12 Schools	Marie Champagne	mchampa4@gmu.edu	(703) 993-3173
Early Childhood Education	Dr. Julie Kidd	jkidd@gmu.edu	(703) 993-8325
Languages (Spanish & French)	Dr. Rebecca Fox <i>Dr. Jenny Leeman*</i> <i>Dr. Christy Pichichero*</i>	rfox@gmu.edu jleeman@gmu.edu cpichich@gmu.edu	(703) 993-4123
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History	Dr. Mark Helmsing <i>Dr. Brian Platt*</i>	mhelmsin@gmu.edu bplatt1@gmu.edu	(703) 993-2384 (703) 993-1253
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Literacy: Reading Specialist	Dr. Jennifer Hathaway	jhathaw2@gmu.edu	(703) 993-5789
Literacy: PreK-12 Classroom	Dr. Jennifer Hathaway	jhathaw2@gmu.edu	(703) 993-5789
Mathematics	Dr. Courtney Baker	cbaker@gmu.edu	(703) 993-5081
Physical Education	Dr. Dominique Banville	dbanvill@gmu.edu	(703) 993-3579
Science K-12	Dr. Nancy Holincheck	nholinch@gmu.edu	(703) 993-8136
STEM	Dr. Nancy Holincheck	nholinch@gmu.edu	(703) 993-8136
Special Education	Jancy Templeton	jtemple1@gmu.edu	(703) 993-2387
Teacher Leadership	Dr. Stephanie Dodman <i>Dr. Farnoosh Shahrokhi*</i>	sdodman@gmu.edu fshahrok@gmu.edu	(703) 993-3841 (703) 993-2009
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ASTL program (general)		astl@gmu.edu	(703) 993-2794
ASTL program website		https://gse.gmu.edu/advanced-teaching-studies/	
ASTL Facebook page		https://www.facebook.com/ASTLProgramGMU/	

* Liaison Contact for Departmental Advising

**Advanced Studies in Teaching and Learning (ASTL)
Program of Study Form**

Once you are admitted and you indicate your intent to enroll, contact your Advisor *immediately*. Advisor information is located in your admissions materials and at <https://gse.gmu.edu/advanced-teaching-studies/current-student-information>.

Complete this form with your Advisor *by the end of your second semester*. What you include on this form is not permanent, and you can adjust as necessary. However, it will provide you with a roadmap for your program. See the Concentration Course Sheet for your specific Concentration for guidance in course selection.

Any changes to your Program of Study should be made in consultation with your Advisor.

Student Name	Concentration
Advisor Name	

Notes on Core courses:

The Core classes may be taken concurrently and interspersed with the Concentration courses OR the Core may be taken in a one year block as necessitated by Concentration course availability.

EDUC 612: offered face to face and online; summer only; must be first Core course taken

EDUC 613: offered face to face and online; fall only; must be second Core course taken

EDUC 614: offered face to face and online; fall only; can be taken concurrently with EDUC 613

EDUC 606: offered face to face and online; spring only; can be taken concurrently with EDUC 615

EDUC 615: offered face to face and online; spring only; must be taken the last spring semester of program

Semester	Semester, Year	Course number	Credits	Concentration or Core?
<i>(Example)</i>	<i>Summer 2019</i>	<i>EDUC 612</i>	<i>2</i>	<i>Core Concentration</i>
		<i>EDLE 620</i>	<i>3</i>	
1				
2				
3				
4				
5				
6				
7				
8				

Student's signature		Date	
Advisor's signature		Date	