

MAED 3500 Syllabus
Curriculum and Methods for Teaching Middle Grades Mathematics

Department of Applied Mathematics & Physics
Valdosta State University

Guiding Principles (DEPOSITS)

(Adapted from the Georgia Systemic Teacher Education Program Accomplished Teacher Framework)

Dispositions Principle: Productive dispositions positively affect learners, professional growth, and the learning environment.

Equity Principle: All learners deserve high expectations and support.

Process Principle: Learning is a lifelong process of development and growth.

Ownership Principle: Professionals are committed to and assume responsibility for the future of their disciplines.

Support Principle: Successful engagement in the process of learning requires collaboration among multiple partners.

Impact Principle: Effective practice yields evidence of learning.

Technology Principle: Technology facilitates teaching, learning, community-building, and resource acquisition.

Standards Principle: Evidence-based standards systematically guide professional preparation and development.

InTASC Model Core Teacher Standards*

(To be used for all teacher preparation program courses. Identify those that apply specifically to this course.)

Standard #1: Learner Development. The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

Standard #2: Learning Differences. The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

Standard #3: Learning Environments. The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.

Standard #4: Content Knowledge. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

Standard #5: Application of Content. The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

Standard #6: Assessment. The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

Standard #7: Planning for Instruction. The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

Standard #8: Instructional Strategies. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Standard #9: Professional Learning and Ethical Practice. The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.

Standard #10: Leadership and Collaboration. The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

*Council of Chief State School Offices, (2013, April). *INTASC model core teacher standards and learning progressions for teachers 1.0*. Retrieved from http://www.ccsso.org/Documents/2013/2013_INTASC_Learning_Progressions_for_Teachers.pdf

INSTRUCTOR

Name:

Office Number:

Telephone Number:

Email Address:

Office Hours:

Website:

COURSE DESCRIPTION

Hours: 3-1-3

Prerequisite: MAED 2999, EDUC 2110, EDUC 2120, EDUC 2130, MATH 2262

A study of the characteristics of the middle grades mathematics learner and the development of appropriate activities for the grade 6-8 learner. Students will assess learners and apply learning theories in order to develop appropriate activities. Activities will be inquiry-based, problem-centered, and appropriate for the learner. Appropriate technology will also be included in these activities. A field experience with a minimum of 100 hours is required and integrated into this course.

REQUIRED TEXTBOOKS/RESOURCE MATERIALS

Textbooks:

Van de Walle, J., Karp, K., & Bay-Williams, J. (2009). *Elementary and middle school mathematics: Teaching developmentally*, 7th ed. Boston: Allyn & Bacon

Bay-Williams, J., & Van de Walle, J. (2009). *Field experience guide for elementary and middle school mathematics: Teaching developmentally*, 7th ed. Boston: Allyn & Bacon

Rubenstein, R., Beckmann, C., & Thompson, D. (2008). *Teaching and learning middle grades math*. Hoboken, NJ: Wiley.

Johnson, A., & Norris, K. (2005). *Teaching today's mathematics in the middle grades*. Boston: Allyn & Bacon.

LiveText Inc. (2004). *College LiveText edu solutions*. La Grange, IL: United Learning Inc.

Additional Sources:

National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: Authors.

National Council of Teachers of Mathematics (2001). *Navigating through Algebra in Grades 6-8*. Reston, VA: Authors

National Council of Teachers of Mathematics (2002). *Navigating through Geometry in Grades 6-8*. Reston, VA: Authors.

National Council of Teachers of Mathematics (2003). *Navigating through Data Analysis in Grades 6-8*. Reston, VA: Authors.

National Council of Teachers of Mathematics (2003). *Navigating through Probability in Grades 6-8*. Reston, VA: Authors.

Technology:
Graphing calculator
Geogebra software/The Geometer's Sketchpad software
Microsoft Excel

COURSE OBJECTIVES

The student will:

- (1) Demonstrate an understanding of middle grades students and how they learn mathematics (InTASC S1, S2)
- (2) Demonstrate competency in planning activities that incorporate a broad understanding of mathematical learning outcomes. (InTASC S4, S5, S6, S7, S8)
- (3) Plan instruction based on state standards and the National Council of Teachers of Mathematics Standards. (InTASC S4, S5, S6, S7)
- (4) Understand, choose, develop, and use effective means of assessing individual learner's performance and knowledge. (InTASC S4, S5, S6, S7)
- (5) Choose, develop, and utilize appropriate curriculum and activities based on assessment of the individual learner. (InTASC S4, S5, S6, S7)
- (6) Choose, develop, and utilize inquiry-based, problem-centered activities. (InTASC S3, S7, S8, S7)
- (7) Evaluate and select instructional materials and resources, including technology, as appropriate. (InTASC S7, S8)
- (8) Become involved in appropriate professional organizations to deepen his/her knowledge of mathematics and maintain current knowledge of developments in mathematics education. (InTASC S9, S10)

COURSE ACTIVITIES/ASSIGNMENTS/REQUIREMENTS

Students will be evaluated on the basis of: written and oral communication skills in mathematics, pedagogical content knowledge, knowledge of evidence-based strategies through development and implementation of lesson plans, teaching observations, impact on grade 6-12 learning, and assessment skills. In order to assess these areas, instructors may use a variety projects, readings, and examinations.

Required Assessments (to meet department, university, and accreditation requirements):

- Assessment of middle grade learners' mathematical knowledge project(s)
- Development and implementation of lesson plans
- Demonstrate an impact on learning (implementing lesson plans, pre/post test to show growth)
- Field experience observation and participation (teacher candidates are required a minimum of 100 hours in a middle grades mathematics classroom)

- LiveText Initial Program Portfolio as assigned by the instructor
- Comprehensive final exam

Other Assignments Determined by the Instructor:

- Professional readings and reading responses
- In-class participation and discussion
- Class assignments
- Problem solving
- Quizzes
- Unit exams

STUDENT EVALUATION

Assessment documentation:

- Documentation of field experiences
- Middle grade learner's project
- Lesson plans implementation
- Reflective writings
- In-class participation and discussion
- Class assignments
- Problem solving
- Quizzes
- Unit exams