

**CERTIFICATION OF ADMINISTRATIVE RULES  
FILED WITH THE LEGISLATIVE SERVICES AGENCY  
OTHNI LATHRAM, DIRECTOR**

(Pursuant to Code of Alabama 1975, §41-22-6, as amended).

I certify that the attached is/are correct copy/copies of rule/s as promulgated and adopted on Thursday, August 8, 2024, and filed with the agency secretary on Thursday, August 8, 2024.

**AGENCY NAME:** State Board of Education State Department of Education  
Office of Teaching and Leading

**INTENDED ACTION:** New

**RULE NO.:** 290-3-3-.62  
(If amended rule, give specific paragraph, subparagraphs, etc., being amended)

**RULE TITLE:** Mathematics Coaching Endorsement

**ACTION TAKEN:** State whether the rule was adopted with or without changes from the proposal due to written or oral comments:

**Adopted with changes.** (typographical changes only)

NOTICE OF INTENDED ACTION PUBLISHED IN VOLUME XLII, ISSUE NO. 9, AAM,  
DATED FRIDAY, JUNE 28, 2024.

**STATUTORY RULEMAKING AUTHORITY:** § 16-4-7, Ala. Code 1975

(Date Filed)  
(For LRS Use Only)

**REC'D & FILED**  
**AUG 13, 2024**  
**LEGISLATIVE SVC AGENCY**

Eric G. Mackey

Eric Mackey

Certifying Officer or his or her  
Deputy

(NOTE: In accordance with §41-22-6(b), as amended, a proposed rule is required to be certified within 90 days after completion of the notice.)

The Mathematics Coaching Endorsement (grades K-5) is designed for teachers who hold a valid Alabama Professional Educator Certificate in early childhood education, elementary education, or collaborative special education teacher (K-6) and have at least three years of teaching experience in grades K-5. The mathematics coaching endorsement shall be offered only at the post baccalaureate level and may not be included within an initial educator preparation program.

### **1. Content and Pedagogical Knowledge.**

a. **Mathematics Coaching Courses.** The mathematics coaching endorsement shall be ~~comprised~~composed of four courses with embedded field experiences. The courses are:

1. K-2 Content and Pedagogical Knowledge
2. 3-5 Content and Pedagogical Knowledge
3. Coaching Principles in the Law
4. Literacy in Mathematics Education

### **1. Definitions**

1. **Numeracy.** Numeracy is defined herein as the ability to understand and work with numbers. Numeracy is the knowledge, skills, behaviors, and dispositions that students need to use mathematics in the world and having the dispositions and capacities to use mathematical knowledge and skills purposely. The candidates are exposed to numeracy standards at the initial certification level. The individuals completing this endorsement are expected to demonstrate advanced knowledge and abilities within this content domain.

2. **Dyscalculia.** A term used to refer to a pattern of learning difficulties characterized by problems processing numerical information, learning ~~a~~-arithmetic facts, performing accurate of fluent calculations, difficulties with mathematical reasoning, and difficulties with word reasoning accuracy. ~~—~~

c. **Analyze, apply, and synthesize** are the keywords used to describe the level of intensity and performance that individuals who complete this endorsement are expected to display. This skillset includes maintaining objectivity and clarity in the best interest of all learners, including those struggling with number sense, and maintaining public trust using current scientifically supported best practices.

- d. **Curriculum.** The curriculum is reflective of the recommendations of the National Council of Teachers of Mathematics (NCTM), the Conference Board of the Mathematics Sciences (CBMS), the United States Department of Education (US DoE), the Council for the Accreditation of Educator Preparation (CAEP) the Mathematics Sciences Research Institute (MSRI), and the Alabama Coaching Framework. These standards have been aligned with the Alabama Course of Study ([ACOS](#)) to ensure that these individuals display critical thinking abilities to coach novice teachers in the development of the mathematical practices that students in the K-5 grade band should develop.
- e. **Pedagogical and Andragogical Framework.** This endorsement provides the necessary coaching framework to assist these coaching candidates in heightening the mathematical knowledge base of novice teachers to assist K-5 learners. The andragogy factors in the learned experiences of adult teachers and potential fears and misconceptions to assist in the development of more confidence and greater teaching principals. The mathematics coach will utilize these teaching practices to ensure that mathematics teachers optimize opportunities to enhance student understanding and application. Coaching candidates learn how to guide novice teachers through assisting students in working through productive struggle as they garner greater mathematical abilities.
- f. **Assessing, Planning and Designing Contexts for Learning.** Coaching candidates learn how to guide and facilitate new teachers in assessing, planning, and designing contexts to support the development of a coherent curriculum and an understanding of how mathematical topics and expectations are connected to each other throughout the elementary grades. This connection throughout the academic curriculum requires coaching candidates to exhibit patience as they model strategies to demonstrate understanding related to student learning, curricular practices and standards, academic language, and assessments within and across K-5 grade levels. This involves each of the following:
1. **Analyze, apply, and synthesize** data to plan sequences of instruction that include goals, appropriate materials, activities, and assessments, and that support engagement in learning through evidence-based practices.
  2. **Analyze, apply, and synthesize** data from formative and summative assessments to determine student competencies

and learning needs, and use this assessment data to provide feedback, improve instruction, and monitor learning.

3. **Analyze, apply, and synthesize** data to differentiate instructional plans to meet the needs of diverse students in the classroom.
4. **Analyze, apply, and synthesize** data to develop accommodations for students with dyscalculia or a math learning disability and provide specific strategies to assist them such as:
  - i. Early warning signs, screenings, and recommendations for intervention,
  - ii. Use of visual representations,
  - iii. Use of instructional examples and concrete objects,
  - iv. Student verbalization,
  - v. Use of heuristic/multiple strategies,
  - vi. Provide ongoing feedback, and
  - (vii) Review strategies and connect to previous learning.

#### 1. **K-2 Content and Pedagogical Knowledge Course.**

- a. **K-2 Content and Pedagogy Knowledge.** Effective mathematics coaches **analyze, apply, and synthesize** major mathematical concepts, algorithms, procedures, connections, and applications in varied contexts, within and among mathematical domains.
- b. **Numerical Practices.** Numerical Practices consist of concepts within number and operations base ten, and operations and algebraic thinking.
- c. **Foundations of Counting.** Analyze, apply, and synthesize the intricacy of counting, including the distinction between counting as a list of numbers in order and counting to determine a number of objects. (ACOS K.1, K.2, K.3, K.4, K.5, 1.10)
- d. **Operations with Numbers: Base Ten.** Upon endorsement completion mathematics coaches shall be able to do the following:
  1. **Analyze, apply, and synthesize** how the base-ten place value system relies on repeated bundling in groups of ten and how to use varied representations including objects, drawings, layered place value cards, and numerical expressions to help reveal the base-ten

structure. (ACOS K.14, 1.11, 1.12, 2.6, 2.7, 2.8, 2.9, 4.6, 4.7, 4.8, 4.9, 5.3, 5.4, 5.5)

2. **Analyze, apply, and synthesize** how efficient base-ten computation methods for addition, subtraction, multiplication, and division rely on decomposing numbers represented in base ten according to the base-ten units represented by their digits and applying (often informally) properties of operations, including the commutative and associative properties of addition and multiplication and the distributive property, to decompose a calculation into parts. (ACOS K.10, K.11, K.12, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.13, 1.14, 1.15, 2.1, 2.2, 2.10, 2.11, 2.12, 2.13, 2.14, 3.10, 3.11, 3.12, 4.10, 4.11, 4.12, 5.6, 5.7, 5.8)

3. **Analyze, apply, and synthesize** how to use drawings or manipulative materials to reveal, discuss, and explain the rationale behind computation methods. (ACOS K.13, K.15, 1.13, 2.1, 2.2, 2.3, 2.4, 2.10, 2.11, 2.12, 2.13, 2.14, 2.21, 2.22, 2.2.2, 2.3, 2.4, 2.10, 2.11, 2.12, 2.13, 2.14, 2.21, 2.22, ~~2.2.2, 2.3, 2.4, 2.10, 2.11, 2.12, 2.13, 2.14, 2.21, 2.22~~, 24c, 3.1, 3.2, 3.3, 3.5, 3.6, 3.8, 3.9, 3.11, 3.12, 4.2, 4.3b, 4.10, 4.11, 4.12, 5.7)

e. **Operations and Algebraic Thinking.** Upon endorsement completion mathematics coaches shall be able to do the following:

1. **Analyze, apply, and synthesize** the different types of problems solved by addition, subtraction, multiplication, and division, and meanings of the operations illustrated by these problem types. (ACOS K.9, 1.1, 1.2, 2.1, 3.3, 3.8, 4.1, 4.2, 4.3, 5.1)

2. **Analyze, apply, and synthesize** teaching/learning paths for single-digit addition and associated subtraction and single-digit multiplication and associated division, including the use of properties of operations. (ACOS K.8, K.12, 1.3, 1.4, 1.5, 1.6, 2.2, 3.1, 3.2, 3.5, 3.6, 3.7)

3. **Analyze, apply, and synthesize** foundations of algebra within elementary mathematics, including understanding the equal sign as meaning "the same amount as" rather than a "calculate the answer" symbol. (ACOS 1.7, 3.4)

4. **Analyze, apply, and synthesize** numerical and algebraic expressions by describing them in words, parsing them into their component parts, and interpreting the components in

terms of a context. (ACOS K.10, K.11, 1.8, 2.3, 2.4, 3.8, 4.3, 5.1)

5. **Analyze, apply, and synthesize** lines of reasoning used to solve equations and systems of equations. (ACOS K.13, 1.9, 2.5, 3.9, 4.4, 4.5, 5.2)
- f. **Measurement, Data Analysis and Geometry.** **Measurement** is the process of finding a number that shows the amount of something. It is a system to measure the height, weight, capacity or even number of certain objects. It is the process of quantifying something and then possibly making comparisons between two or more objects or concepts. Typically, measurements involve 2 parts—a numeric value and the specific unit. **Data Analysis** is the ability to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them. **Geometry** is the study of different types of shapes, figures, and sizes in real life. Coaches will develop greater knowledge and abilities within geometry to assist novice teachers with the ability to instruct K-5 learners.

1. **Measurement.** Upon program completion mathematics coaches shall be able to do the following:

- i. **Analyze, apply, and synthesize** the general principles of measurement, the process of iterations, and the central role of units: that measurement requires a choice of measurable attribute, that measurement is comparison with a unit and how the size of a unit affects measurements, and the iteration, additivity, and invariance used in determining measurements. (ACOS K.16, K.17, 1.17, 1.18, 1.19, 1.20, 2.17, 2.18, 2.19, 2.20, 2.23, 2.24, 4.21, 5.17)
- ii. **Analyze, apply, and synthesize** how the number line connects measurement with number through length. (ACOS 2.21, 2.22, 4.22)

2. **Data Analysis (Statistics and Probability).** Upon program completion mathematics coaches shall be able to do the following:

- i. **Analyze, apply, and synthesize** appropriate graphs and numerical summaries to describe the distribution of categorical and numerical data. (ACOS K.15, 1.16, 2.15, 3.16, 3.17, 5.16)

- ii. **Analyze, apply, and synthesize** the understanding that responses to statistical questions should consider variability. (ACOS 2.16, 4.20, 5.16, 6.22)

3. **Geometry.** Upon program completion mathematics coaches shall be able to do the following:

- i. **Analyze, apply, and synthesize** geometric concepts of angle, parallel, and perpendicular; use them in describing and defining shapes; and describing and reasoning about spatial locations (including the coordinate plane). (ACOS K.18, K.19, K.20, 4.24, 4.25, 4.26, 4.27, 4.28, 4.29, 5.20, 6.25)
- ii. **Analyze, apply, and synthesize** how shapes are classified into categories, and how reasoning is used to explain the relationships among the categories. (ACOS K.21, K.22, K.23, 1.21, 1.22, 2.25, 2.26, 3.26, 5.21, 5.22, 5.23)

### 3. 3-5 Content and Pedagogy Knowledge Course.

(a) **3-5 Content and Pedagogy Knowledge.** Effective mathematics coaches **analyze, apply, and synthesize** major mathematical concepts, algorithms, procedures, connections, and ~~appliatiions~~applications in varied contexts, within and among mathematical domains.

(b) **Numerical Practices.** Numerical Practices consist of concepts within number and operations base ten, and operations and algebraic thinking.

(c) **Operations with Numbers: Base Ten.** Upon program completion mathematics coaches shall be able to do the following:

1. **Analyze, apply, and synthesize** how the base-ten place value system relies on repeated bundling in groups of ten and how to use varied representations including objects, drawings, layered place value cards, and numerical expressions to help reveal the base-ten structure. (ACOS K.14, 1.11, 1.12, 2.6, 2.7, 2.8, 2.9, 4.6, 4.7, 4.8, 4.9, 5.3, 5.4, 5.5)

2. **Analyze, apply, and synthesize** how efficient base-ten computation methods for addition, subtraction, multiplication, and division rely on decomposing numbers represented in base ten according to the base-ten units represented by their digits and applying (often informally) properties of operations, including the commutative and associative properties of addition and multiplication and the distributive property, to decompose a calculation into parts. (ACOS K.10, K.11, K.12, 1.1, 1.2, 1.3,

1.4, 1.5, 1.6, 1.7, 1.8, 1.13, 1.14, 1.15, 2.1, 2.2, 2.10, 2.11, 2.12, 2.13, 2.14, 3.10, 3.11, 3.12, 4.10, 4.11, 4.12, 5.6, 5.7, 5.8)

3. **Analyze, apply, and synthesize** how to use drawings or manipulative materials to reveal, discuss, and explain the rationale behind computation methods. (ACOS K.13, K.15, 1.13, 2.1, 2.2, 2.3, 2.4, 2.10, 2.11, 2.12, 2.13, 2.14, 2.21, 2.22, 2.2.14, 2.21, 2.22, 24c, 3.1, 3.2, 3.3, 3.5, 3.6, 3.8, 3.9, 3.11, 3.12, 4.2, 4.3b, 4.10, 4.11, 4.12, 5.7)

4. **Analyze, apply, and synthesize** how to extend the base-ten system to decimals and use number lines to represent decimals. Explain the rationale for decimal computation methods. (ACOS 5.3, 5.4a, 5.5, 5.8)

**(d) Operations and Algebraic Thinking.** Upon program completion mathematics coaches shall be able to do the following:

1. **Analyze, apply, and synthesize** the different types of problems solved by addition, subtraction, multiplication, and division, and meanings of the operations illustrated by these problem types. (ACOS K.9, 1.1, 1.2, 2.1, 3.3, 3.8, 4.1, 4.2, 4.3, 5.1)
2. **Analyze, apply, and synthesize** teaching/learning paths for single-digit addition and associated subtraction and single-digit multiplication and associated division, including the use of properties of operations. (ACOS K.8, K.12, 1.3, 1.4, 1.5, 1.6, 2.2, 3.1, 3.2, 3.5, 3.6, 3.7)
3. **Analyze, apply, and synthesize** foundations of algebra within elementary mathematics, including understanding the equal sign as meaning "the same amount as" rather than a "calculate the answer" symbol. (ACOS 1.7, 3.4)
4. **Analyze, apply, and synthesize** numerical and algebraic expressions by describing them in words, parsing them into their component parts, and interpreting the components in terms of a context. (ACOS K.10, K.11, 1.8, 2.3, 2.4, 3.8, 4.3, 5.1)
5. **Analyze, apply, and synthesize** lines of reasoning used to solve equations and systems of



equations. (ACOS K.13, 1.9, 2.5, 3.9, 4.4, 4.5, 5.2)

**(e) Operations with Numbers: Fractions.** Upon program completion mathematics coaches shall be able to do the following:

1. **Analyze, apply, and synthesize** fractions as numbers, which can be represented by area and set models and by lengths on a number line. Define  $a/b$  fractions as a part, each of size  $1/b$ . Attend closely to the whole (referent unit) while solving problems and explaining solutions. (ACOS 1.23, 2.27, 3.13, 3.14)
2. **Analyze, apply, and synthesize** addition, subtraction, multiplication, and division problem types and associated meanings for the operations extended from whole numbers to fractions. (ACOS 4.15, 4.16, 5.11, 5.14, 5.15)
3. **Analyze, apply, and synthesize** the rationale for defining and representing equivalent fractions and procedures for adding, subtracting, multiplying, and dividing fractions. (ACOS 3.15, 4.13, 4.14, ~~4.17, 4.18, 4.19, 5.17, 4.18, 4.19, 5.9~~, 5.10, 5.12)
4. **Analyze, apply, and synthesize** the connection between fractions and division,  $a/b = a \div b$ , and how fractions, ratios, and rates are connected via unit rates. (ACOS 5.11)
5. **Analyze, apply, and synthesize** proportional relationships from other relationships, such as additive relationships and inversely proportional relationships. (ACOS 5.13, 7.2)
6. **Analyze, apply, and synthesize** unit rates to solve problems and to formulate equations for proportional relationships. (ACOS 5.13, 7.1, 7.2)

**(f) Measurement, Data Analysis and Geometry.** Measurement is the process of finding a number that shows the amount of something. It is a system to measure the height, weight, capacity or even number of certain objects. It is the process of quantifying something and then possibly making comparisons between two or more objects or concepts. Typically, measurements

involve 2 parts—a numeric value and the specific unit. **Data Analysis** is the ability to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them. **Geometry** is the study of different types of shapes, figures, and sizes in real life. Coaches will develop greater knowledge and abilities within geometry to assist novice teachers with the ability to instruct K-5 learners.

1. **Measurement.** Upon program completion mathematics coaches shall be able to do the following:

- i. **Analyze, apply, and synthesize** the general principles of measurement, the process of iterations, and the central role of units: that measurement requires a choice of measurable attribute, that measurement is comparison with a unit and how the size of a unit affects measurements, and the iteration, additivity, and invariance used in determining measurements. (ACOS K.16, K.17, 1.17, 1.18, 1.19, 1.20, 2.17, 2.18, 2.19, 2.20, 2.23, 2.24, 4.21, 5.17)
- ii. **Analyze, apply, and synthesize** how the number line connects measurement with number through length. (ACOS 2.21, 2.22, 4.22)
- iii. **Analyze, apply, and synthesize** what area and volume are and give rationales for area and volume formulas that can be obtained by finitely many compositions and decompositions of unit squares or unit cubes, including formulas for the areas of rectangles, triangles, and parallelograms, and volumes of rectangular prisms. (ACOS 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 4.23, 5.18, 5.19, 6.26, 6.27, 6.28)

2. **Data Analysis (Statistics and Probability).** Upon program completion mathematics coaches shall be able to do the following:

- i. **Analyze, apply, and synthesize** appropriate graphs and numerical summaries to describe the distribution of categorical and numerical data. (ACOS K.15, 1.16, 2.15, 3.16, 3.17, 5.16)
- (ii) **Analyze, apply, and synthesize** that responses to statistical questions should consider variability. (ACOS 2.16, 4.20, 5.16, 6.22)

3. **Geometry.** Upon program completion mathematics coaches shall be able to do the following:

i. **Analyze, apply, and synthesize** geometric concepts of angle, parallel, and perpendicular; use them in describing and defining shapes; and describing and reasoning about spatial locations (including the coordinate plane). (ACOS K.18, K.19, K.20, 4.24, 4.25, 4.26, 4.27, 4.28, 4.29, 5.20, 6.25)

(ii) **Analyze, apply, and synthesize** how shapes are classified into categories, and how reasoning is used to explain the relationships among the categories. (ACOS K.21, K.22, K.23, 1.21, 1.22, 2.25, 2.26, 3.26, 5.21, 5.22, 5.23)

4. **Coaching Principles in the Law Course.** The Alabama State Department of Education (ALSDE) defines coaching as a supportive, job-embedded, ongoing, and differentiated professional learning practice focusing on growth and achievement for all. In accordance with The Alabama Numeracy Act, the K-5 mathematics coaching endorsement shall prepare individuals to demonstrate conceptual understanding and procedural fluency regarding major concepts of mathematics appropriate for grades K-5. The Coaching Principles in the Law course may only be taken after successful completion of the K-2 and 3-5 content and pedagogical knowledge courses.

a. **Professional Dispositions and Practices.**  
Demonstrate the pillars of effective coaching according to the Alabama Coaching Framework:

1. Leads by example and influence,
2. Builds a relationship-oriented collaborative approach,
3. Applies knowledge and experience of adult and student learning,
4. Utilizes effective communication to promote growth, and
5. Incorporates evidence and data to support instructional improvement.

b. **Framework:** The Alabama Coaching Framework document, developed by the Alabama State Department of Education (2020), was designed to improve outcomes for equitable teaching and learning.

c. **Course Content.** Candidates shall:

1. Demonstrate coaching strategies including goals, principles, and approaches in the Alabama Coaching Framework.
  2. Understand adult learning principles that support collaboration with the ultimate goal of improved student performance.
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1. Demonstrate leadership skills.
  4. Understand the roles of school-based mathematics coaches.
  5. Understand research on the science of learning.
  6. Translate research findings to effective instruction.
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1. Conduct coaching cycles.
  8. Demonstrate ability to work with school administrators in disaggregating data and developing strategies.
  9. Demonstrate ability to effectively present complex information to and engage with various stakeholders.
  10. Participate actively and co-facilitate the professional learning community of mathematics educators.
  11. Analyze and organize data for interpretation and application.
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5. **Literacy in Mathematics Education Course.** An excellent mathematics program in Alabama requires educators to hold themselves and their colleagues accountable for seeking and engaging in professional growth to improve their practice as lifelong learners in order to promote student understanding of mathematics as a meaningful endeavor applicable to everyday life. Professionals are dedicated to learning and improving their craft, which ultimately benefits students. Designing and enacting effective lessons and valid assessments requires teachers to increase their knowledge and skill throughout their careers. Teaching in ways that promote student collaboration in learning mathematics from and with each other requires adults to model effective collaboration in their own learning and progress. The Literacy in Mathematics Education course may only be taken after successful completion of the K-2 and 3-5 content and pedagogical knowledge courses.

- a. **Professional Dispositions.** Demonstrates habits of an effective teacher according to the Interstate Teacher Assessment and Support Consortium (InTASC) standards and the Alabama Mathematics Course of Study (2019).
- b. **Framework: InTASC Standards.** Pursuant to the mission of improving the academic achievement of all students in the public schools of Alabama, mathematic coaches will guide K-5 teachers in aligning their instruction with the Interstate Teacher Assessment and Support Consortium (InTASC) standards.
  - 1. **Learner Development.** The coach models 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.
  - 2. **Learning Differences.** The coach models understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - 3. **Learning Environments.** The coach models how to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.
  - 4. **Content Knowledge.** The coach models how to utilize the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.
  - 5. **Application of Content.** The coach connects concepts and uses differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
  - 6. **Assessment.** The coach models how to use multiple methods of assessment to engage learners in their

own growth, to monitor learner progress, and to guide the candidate's and learner's decision making.

7. **Planning for Instruction.** Based on the appropriate Alabama Course(s) of Study, the coach models how to plan 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.
8. **Instructional Strategies.** The coach models how to use 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.
9. **Professional Learning and Ethical Practice.** The coach emphasizes engagement in ongoing professional learning and the use of 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 illustrates how to adapt practice to meet the needs of each learner.
10. **Leadership and Collaboration.** The coach suggests that novice teachers seek 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.

c. **Course Content.** Candidates shall:

1. Have knowledge of historical developments in mathematics, including the contributions of underrepresented groups and diverse cultures.
2. Demonstrate knowledge of the basic structures and problem types of word problems for all operations and proper sequencing to support student understanding of the meaning of the operations.
3. Understand the developmental nature of mathematics and the interconnections among mathematical concepts.

4. Demonstrate knowledge of common errors and misconceptions about the operations and how to help students learn.
5. Demonstrate knowledge of the phases students move through in developing fluency.
6. Use their knowledge of student diversity to affirm and support full participation and continued study of mathematics by all students. Student diversity includes gender, ethnicity, socioeconomic background, language, special needs, and mathematical learning styles.
7. Use appropriate technology to support the learning of mathematics.
8. Use appropriate formative and summative assessment methods to assess student learning and program effectiveness.
9. Use formative assessments to monitor student learning and to adjust instructional strategies and activities.
10. Use summative assessments to determine student achievement and to evaluate the mathematics program.
11. Know when and how to use student groupings such as collaborative groups, cooperative learning, and peer teaching.

6. **Unique Field Experience Requirements:** At a minimum, field experiences shall include placements where candidates:

- a. Observe building-based coaches provide assistance and scaffold support on a daily basis in grade levels K-2 and 3-5.
- b. Practice a mini-coaching cycle, according to prescribed expectations, with a teacher in his/her school under the guidance of the building-based math coach in grade levels K-2 and 3-5.

7. **Faculty:** The faculty should include at least one individual with at least an education specialist degree and 3 full

years of professional educational work experience teaching mathematics in grade levels K-5. The individual teaching the Coaching Principles in the Law course must also have a minimum of three full years of professional educational work experience as a K-5 instructional coach.

**Author:** Dr. Eric G. Mackey.

**Statutory Authority:** Ala. Code §§ 16-3-16, 16-23-14, and 16-6H-1 through -19, (1975); Act 2022-239.

**History:** **Emergency rule** filed June 20, 2024; effective June 20, 2024. Permanent Rule published ~~\_\_\_\_\_~~; ~~effective~~ \_\_\_\_\_August 30, 2024; effective October 14, 2024.