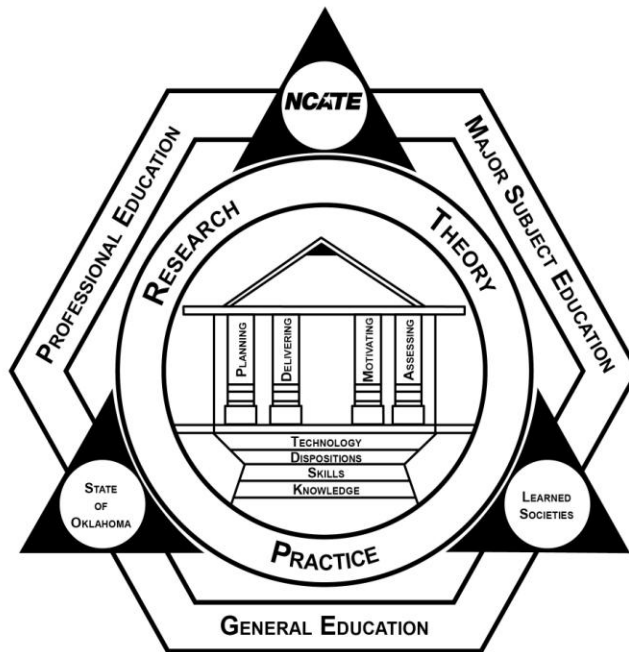



SOUTHEASTERN
A CENTURY OF BUILDING FUTURES



PROFESSIONALS FOR THE 21ST CENTURY
COMPETENT • COMMITTED • ETHICAL

ADVANCED CERTIFICATE PORTFOLIO GUIDELINES

Master of Education Mathematics Specialist

Revised: November, 2009

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Southeastern Oklahoma State University Mathematics Specialist Advanced Certificate Portfolio

This handbook is designed for Mathematics Specialist candidates and faculty in the M.Ed. Mathematics Specialist program at Southeastern. It provides the basic information needed to successfully complete the portfolio development process as required for the completion of a degree, licensure, and certification.

The portfolio and its contents are the responsibility of the advanced candidate, and is a certification requirement of the Oklahoma State Regents for Higher Education and the Oklahoma Commission for Teacher Preparation. The advanced candidate is responsible for preparing and/or selecting items of evidence and completing the portfolio according to the appropriate guidelines.

Philosophy for Teacher Education Unit

The unit's philosophy begins with the fundamental belief that all students can learn; however, students learn in different ways and at different rates. Therefore, educators must be knowledgeable about the content they teach and be committed to utilizing a variety of instructional strategies and approaches appropriate to the diverse learning needs of all students. The educational needs of all students will be provided in a caring, non-discriminatory and equitable manner.

Another major component of the philosophy is the belief that candidates and other school professionals must have the knowledge and skills to utilize technology in order to assist all students in achieving their full potential as learners and citizens of the world. Schools and classrooms must have educators who are equipped with technology resources and skills and who can effectively teach the necessary subject matter content while incorporating technology concepts and skills (ISTE, 2008, p. 3).

Southeastern Oklahoma State University Vision 2015

Southeastern will be a leader and innovator in higher education. Strong academic and student life programs with a solid liberal arts and sciences foundation will characterize the university. Areas such as diversity, globalization, uniqueness, and cultural richness will be distinctive features of the institution.

University Mission Statement

Southeastern Oklahoma State University provides an environment of academic excellence that enables students to reach their highest potential. By having personal access to excellent teaching, challenging academic programs, and extracurricular experiences, students will develop skills and habits that promote values for career preparation, responsible citizenship, and lifelong learning.

Teacher Education Unit Vision

The teacher education unit at Southeastern Oklahoma State University strives to be an exemplary provider of high quality teacher education programs in southeastern Oklahoma and northern Texas for the development of educational practitioners.

Teacher Education Unit Mission

The mission of the Southeastern Oklahoma State University's teacher education unit is to produce graduates who demonstrate academic and practical excellence in their respective fields. Through quality instruction grounded in current research and supported by diverse field and clinical experiences and technology usage, graduates will develop the professional competencies necessary to become lifelong learners who are competent, committed, and practitioners.

Purpose of the Teacher Education Unit

The purpose of the teacher education unit is to train competent, committed and ethical teachers and other school professionals to teach, counsel, administer, and lead in P-12 schools.

Conceptual Framework

Candidate Learning Outcomes/Institutional Standards

Knowledge

1. Educators have broad knowledge of liberal arts/general education.
2. Educators know the content appropriate to their major subject area.
3. Educators acquire pedagogical knowledge appropriate to his/her specialty area.
4. Educators know the specific uses of technology in their discipline.

Skills

1. Educators demonstrate effective communication skills with peers, colleagues, and families.
2. Educators have strong and current technology skills.
3. Educators apply a variety of instructional strategies and materials to promote
4. critical thinking in students.
5. Educators plan instruction that is appropriate for a diverse student population.
6. Educators use a variety of methods to deliver instruction.
7. Educators motivate students to learn.
8. Educators use multiple assessment tools to monitor student learning and modify instruction.

Dispositions

Based on the vision, mission, philosophy, purposes, goals/outcomes, the unit is committed to preparing school practitioners who will demonstrate the following dispositions:

1. Educators who are **competent**:
 - a. possess the knowledge, skills, and dispositions needed to perform their role and responsibilities in the classroom.
 - b. promote positive learning outcomes for all students.

- c. know how to use self-reflection to learn from their experiences and improve their effectiveness.
 - d. know how to secure and use various technological resources to enhance student learning, communication, and management tasks.
 - e. embrace cultural diversity and accommodate the needs of diverse learners.
 - f. value the role of the family in the child's education and know how to work cooperatively with parents for the community for the student's benefit.
2. Educators who are **committed**:
- a. support learning for diverse learners in a caring, non-discriminatory and equitable manner.
 - b. establish to high standards for all students.
 - c. set high standards for themselves by being personally invested in their own professional work and career development.
 - d. are proud to serve their communities as educational leaders and advocate for the profession in all interactions.
 - e. engage in service to the profession and community.
3. Educators who meet high **ethical** standards of practice:
- a. respect and value all students and others for their diverse talents, abilities, and contributions
 - b. are sensitive to community and cultural norms.
 - c. are timely, respectful, and responsible in meeting expectations.
 - d. model ethical and democratic principles in all relationships.
 - e. use sound judgment and display confidence in practice.
 - f. are honest in communications and interactions with others.
 - g. maintain confidentiality.

Portfolio Philosophy Statement

The advanced certificate portfolio provides the opportunity for advanced candidates to demonstrate their professional growth in the knowledge, skills, and dispositions outlined in the conceptual framework for the teacher education unit at Southeastern, the fifteen (15) competencies of the Oklahoma Commission for Teacher Preparation, and the standards established by the International Reading Association (IRA). The portfolio is a collection of artifacts from the specialization and professional education courses on the Reading Specialist degree plan demonstrating the varied learning opportunities and field experiences of the candidates.

The portfolio development process encourages advanced candidates to be reflective of their learning outcomes as well as their impact on student learning. The prescribed artifacts from each candidate's courses and field experiences reflect the diversity and depth of the candidate's professional preparation.

In addition, the advanced certificate portfolio process provides a document that reflects authentic assessment activities that are utilized by the faculty and unit to evaluate and improve the teacher

education program. Feedback on individual artifacts and at the end of each module, provide the candidates with continuous support and opportunities to improve their professional growth.

Portfolio Policy Statement, Guidelines, and Format

Policy Statement

Advanced candidates in the teacher education program at Southeastern are required to develop an assessment portfolio documenting their growth and professional progress throughout their professional education program. The portfolio process begins when a candidate enrolls in the first introductory teacher education course. All advanced candidates must present their portfolio at the completion of each module. At the completion of Module III candidates will present their completed portfolio for a final assessment by a program faculty member.

Transfer advanced candidates must take their portfolio to the program coordinator to have the portfolio reviewed for artifacts completed at other universities. It is the candidate's responsibility to create missing portfolio items prior to program completion.

Guidelines

All Southeastern advanced candidates' portfolios will contain the required three (3) modules and utilize the same format. Teacher candidates should print the Advanced Certification Portfolio for Reading Specialists from the Southeastern web site during the first course on the degree plan. All candidates must complete Module I and II prior to practicum. Module III is completed during practicum and submitted with the other two modules prior to graduation.

Format

The Advanced Certificate Portfolio should be presented in a three-ring binder**. The binder must include the following:

1. divided sections
2. title page
3. artifacts required for each course
4. assessment rubric placed in front of each artifact
5. a competency reflection for each artifact
6. order of items is assessment rubric, artifact, and competency reflection
7. completion of all assessments and log
8. identification on front cover and binder spine

****Candidates beginning the Mathematics Specialist program in fall 2010 will be required to use the Chalk & Wire e-portfolio software which can be purchased through the campus book store.**

Schedule for Evaluating Portfolios

Candidates begin his/her portfolio during the first class on the degree plan. Modules I, II, and III are assessed at the following transition points:

Module I contains artifacts and rubrics from EDUC 5203, MATH 5543, MATH 5523, and EDUC 5223. Module I is assessed by program faculty at the end of the first twelve (12) hours and prior to admission to candidacy.

Module II contains artifacts and rubrics from MATH 5513, SPED 5443, MATH 5533, and EDAD 5323. Module II must be completed and assessed by faculty prior to admission to practicum and before permission to take the comprehensive exams.

Module III contains artifacts and rubrics from MATH 5553, MATH 5593, and EDUC 5683. Module III is assessed prior to program completion/graduation by a program faculty member.

**Module I – Assessment Checklist
Mathematics Specialist Program**

Candidate Name _____ Date _____

Completed	Artifact Number	Course	Artifact	NCTM Standards	OCTP Component/Competency	Assessment Overall Score
	#1	EDUC 5203	Research Article	8	1, 2	
	#2	MATH 5543	Lesson Change Project	1, 3, 7, 8, 14	1, 2, 3, 4, 5, 6, 12, 15	
	#3	MATH 5543	Problem from Journal	1, 2, 3, 4, 5, 7, 10	1, 12	
	#4	MATH 5523	Case Study Project	1, 3, 7, 8, 9	1, 3, 4, 5, 6, 7, 8, 12, 14	
	#5	EDUC 5223	Research Project	3, 4, 5, 6, 12	8	

Each artifact must be accompanied by an assessment rubric and an NCTM standard and OCTP competency reflection form.

The candidate has satisfactorily completed Module I.

Faculty Signature

Date

****Module I must be completed and assessed prior to admission to candidacy.**

**Module II – Assessment Checklist
Mathematics Specialist Program**

Candidate Name _____ Date _____

Completed	Artifact Number	Course	Artifact	NCTM Standards	OCTP Component/Competency	Overall Assessment Score
	#6	MATH 5513	Case Study Reflection	8, 10, 14	1, 3, 4, 5, 6, 7, 8, 12, 14	
	#7	MATH 5513	Technology Demo	1, 3, 4, 5, 6, 8, 10	1, 3, 4, 5, 6, 7, 8, 12, 14	
	#8	SPED 5443	Plan of Study	3, 8	1, 2, 3, 4, 5, 6, 7, 8, 13	
	#9	MATH 5533	Case Study Reflection	8, 11, 14	1, 3, 4, 5, 6, 7, 8, 12, 14	
	#10	MATH 5533	Geometer's Sketchpad Demo	1, 3, 4, 5, 6, 8, 11	1, 3, 4, 5, 6, 7, 8, 12, 14	
	#11	EDAD 5323	Individual Teacher Supervisory Plan Project	8	1, 2	

Each artifact must be accompanied by an assessment rubric and an NCTM standard and OCTP competency reflection form.

The candidate has satisfactorily completed Module II.

Faculty Signature

Date

****Module II must be completed and assessed prior to admission to practicum and for permission to take the comprehensive exams.**

**Module III – Assessment Checklist
Mathematics Specialist Program**

Candidate Name _____ Date _____

Completed	Artifact Number	Course	Artifact	NCTM Standards	OCTP Competency	Assessment Overall Score
	#12	MATH 5553	Investigative Lesson Plan	1, 2, 3, 4, 5, 6, 7, 8, 12	1, 2, 3, 4, 5, 6, 7, 8, 12, 15	
	#13	MATH 5593	Literature Review	3, 7, 8, 14	1, 2, 3, 4, 5, 6, 9, 12	
	#14	EDUC 5683	Professional Development Project	1, 2, 3, 4, 5, 6, 7, 8, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15	

Each artifact must be accompanied by an assessment rubric and an NCTM standard and OCTP competency reflection form.

The candidate has satisfactorily completed Module III

Faculty Signature

Date

****Module III must be completed and assessed prior to program completion/graduation.**

APPENDIX A

NCTM Standards for Elementary Mathematics Specialist

Standard 1: Knowledge of Mathematical Problem Solving
1.1-Apply and adapt a variety of appropriate strategies to solve problems.
1.2-Solve problems that arise in mathematics and those involving mathematics in other contexts.
1.3-Build new mathematical knowledge through problem solving.
1.4-Monitor and reflect on the process of mathematical problem solving.
Standard 2: Knowledge of Reasoning and Proof
2.1-Recognize reasoning and proof as fundamental aspects of mathematics.
2.2-Make and investigate mathematical conjectures.
2.3-Develop and evaluate mathematical arguments and proofs.
2.4-Select and use various types of reasoning and methods of proof.
Standard 3: Knowledge of Mathematical Communication
3.1-Communicate their mathematical thinking coherently and clearly to peers, faculty, and others.
3.2-Use the language of mathematics to express ideas precisely.
3.3-Organize mathematical thinking through communication.
3.4-Analyze and evaluate the mathematical thinking and strategies of others.
Standard 4: Knowledge of Mathematical Connections
4.1-Recognize and use connections among mathematical ideas.
4.2-Recognize and apply mathematics in contexts outside of mathematics.
4.3-Demonstrate how mathematical ideas interconnect and build on one another to produce a coherent whole.
Standard 5: Knowledge of Mathematical Representation
5.1-Use representations to model and interpret physical, social, and mathematical phenomena.
5.2-Create and use representations to organize, record, and communicate mathematical ideas.
Select, apply, and translate among mathematical representations to solve problems.
Standard 6: Knowledge of Technology
6.1-Use knowledge of mathematics to select and use appropriate technological tools, such as but not limited to, spreadsheets, dynamic graphing tools, computer algebra systems, dynamic statistical packages, graphing calculators, data-collection devices, and presentation software.
Standard 7: Dispositions
7.1-Attention to equity
7.2-Use of stimulating curricula
7.3-Effective teaching
7.4-Commitment to learning with understanding
7.5-Use of various assessments
7.6-Use of various teaching tools including technology
Standard 8: Knowledge of Mathematics Pedagogy
8.1-Selects, uses, and determines suitability of the wide variety of available mathematics curricula and teaching materials for all students including those with special needs such as the gifted, challenged and speakers of other languages.
8.2-Selects and uses appropriate concrete materials for learning mathematics.
8.3-Uses multiple strategies, including listening to and understanding the ways students think about mathematics, to assess students' mathematical knowledge.
8.4-Plans lessons, units and courses that address appropriate learning goals, including those that address local, state, and national mathematics standards and legislative mandates.
8.5-Participates in professional mathematics organizations and uses their print and on-line resources.
8.6-Demonstrates knowledge of research results in the teaching and learning of mathematics.
8.7-Uses knowledge of different types of instructional strategies in planning mathematics lessons.
8.8-Demonstrates the ability to lead classes in mathematical problem solving and in developing in-depth conceptual understanding, and to help students develop and test generalizations.
8.9-Develop lessons that use technology's potential for building understanding of mathematical concepts and

developing important mathematical ideas.
Standard 9: Knowledge of Number and Operation
9.1-Develop the meaning of addition, subtraction, multiplication, and division and provide multiple models for whole number operations and their applications.
9.2-Recognize the meaning and use of place value in representing whole numbers and finite decimals, comparing and ordering numbers, and understanding the relative magnitude of numbers.
9.3-Demonstrate proficiency in multi-digit computation using algorithms, mental mathematics, and computational estimation.
9.4-Analyze integers and rational numbers, their relative size, and how operations with whole numbers extend to integers and rational numbers.
9.5-Demonstrate knowledge of the historical development of number and number systems including contributions from diverse cultures.
Standard 10: Knowledge of Different Perspectives on Algebra
10.1-Explore and analyze patterns, relations, and functions.
10.2-Recognize and analyze mathematical structures.
10.3-Investigate equality and equations.
10.4-Use mathematical models to represent quantitative relationships.
10.5-Analyze change in various contexts.
10.6-Demonstrate knowledge of the historical development of algebra including contributions from diverse cultures.
Standard 11: Knowledge of Geometries
11.1-Use visualization, the properties of two- and three-dimensional shapes, and geometric modeling.
11.2-Build and manipulate representations of two- and three-dimensional objects using concrete models, drawings, and dynamic geometry software.
11.3-Specify locations and describe spatial relationships using coordinate geometry.
11.4-Apply transformations and use symmetry, congruence, and similarity.
11.5-Demonstrate knowledge of the historical development of Euclidean and non-Euclidean geometries including contributions from diverse cultures.
Standard 12: Knowledge of Data Analysis, Statistics, and Probability
12.1-Design investigations that can be addressed by creating data sets and collecting, organizing, and displaying relevant data.
12.2-Use appropriate statistical methods and technological tools to analyze data and describe shape, spread, and center.
12.3-Apply the basic concepts of probability.
12.4-Demonstrate knowledge of the historical development of probability and statistics including contributions from diverse cultures.
Standard 13: Knowledge of Measurement
13.1-Select and use appropriate measurement units, techniques, and tools.
13.2-Recognize and apply measurable attributes of objects and the units, systems, and processes of measurement.
13.3-Employ estimation as a way of understanding measurement units and processes.
13.4-Demonstrate knowledge of the historical development of measurement and measurement systems including contributions from diverse cultures.
Standard 14: Field-Based Experiences
14.1-Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in elementary mathematics classrooms under the supervision of experienced and highly qualified teachers.
14.2-Experience full-time student teaching in elementary-level mathematics that is supervised by an experienced and highly qualified teacher and a university or college supervisor with elementary mathematics teaching experience.
14.3-Demonstrate the ability to increase students' knowledge of mathematics.

APPENDIX B

Oklahoma State Department of Education General Competencies for Licensure and Certification in Professional Education Courses House Bill 1549

THE CANDIDATE:

1. understands the central concepts and methods of inquiry of the subject matter discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
2. understands how students learn and develop, and can provide learning opportunities that support their intellectual, social and physical development at all grade levels including early childhood, elementary, middle level, and secondary.
3. understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to individual differences of learners.
4. understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.
5. uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation and active engagement in learning, thus, providing opportunities for success.
6. develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
7. plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community; and adapts instruction based upon assessment and reflection.
8. understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social and physical development of the learner.
9. evaluates the effects of his/her choices and actions of others (students, parents, and other professionals in the learning community), modifies those actions when needed, and actively seeks opportunities for continued professional growth.
10. fosters positive interaction with school colleagues, parents/families, and organizations in the community to actively engage them in support of students' learning and well-being.
11. shall have an understanding of importance of assisting students with career awareness and the application of career concepts to the academic curriculum.
12. understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.
13. understands the legal aspects of teaching including the rights of students and parents/families, as well as the legal rights and responsibilities of the teacher.
14. understands the Oklahoma core curriculum and is able to develop instructions strategies/plans based on Priority Academic Student Skills (PASS).
15. understands the State teacher evaluation process, "Oklahoma Criteria for Effective Teacher Performance," and how to incorporate these criteria in designing instructional strategies.

APPENDIX C

Oklahoma Criteria for Effective Teaching Performance

- I. **PRACTICE**
 - A. Teacher Management Indicators
 - 1. Preparation
 - 2. Routine
 - 3. Discipline
 - 4. Learning Environment
 - B. Teacher Instructional Indicators
 - 1. Establishes Objectives
 - 2. Stresses Sequence
 - 3. Relates Objectives
 - 4. Involves All Learners
 - 5. Explains Content
 - 6. Explains Directions
 - 7. Models
 - 8. Monitors
 - 9. Adjusts Based on Monitoring
 - 10. Guides Practices
 - 11. Provides for Independent Practice
 - 12. Establishes Closure

- II. **PRODUCTS**
 - A. Teacher Product Indicators
 - 1. Lesson Plans
 - 2. Student Files
 - 3. Grading Patterns
 - B. Student Achievement Indicators
 - 1. State standards

Teacher Instructional Indicators

1. **Establishes Objectives** - The teacher communicates the instructional objectives to students.
2. **Stresses Sequence** - The teacher shows how the present topic is related to those topics that have been taught or that will be taught.
3. **Relates Objectives** - The teacher relates subject topics to existing student experiences.
4. **Involves All Learners** - The teacher uses signaled responses, questioning techniques and/or guided practices to involve all students.
5. **Explains Content** - The teacher teaches the objectives through a variety of methods.
6. **Explains Directions** - The teacher gives directions that are clearly stated and related to the learning objectives.
7. **Models** - The teacher demonstrates the desired skills.
8. **Monitors** - The teacher checks to determine if students are progressing toward stated objectives.
9. **Adjusts Based on Monitoring** - The teacher changes instruction based on the results of monitoring.
10. **Guides Practice** - The teacher requires all students to practice newly learned skills while under the direct supervision of the teacher.
11. **Provides for Independent Practice** - The teacher requires students to practice newly learned skills without the direct supervision of the teacher.
12. **Establishes Closure** - The teacher summarizes and fits into context what has been taught.