

MIDDLE SCHOOL EDUCATION MATH/SCIENCE

Mission Statement

UNF graduates from the B.A.E program in Middle School Education will acquire appropriate knowledge, skills, and dispositions needed to design experiences in curriculum, instruction, and evaluation of ten- to fourteen-year-old students in both mathematics and sciences.

The core learning objectives of the Middle School Education program (Math/Science) have been developed in accordance with state certification requirements and based on recommendations of professional organizations such as the National Science Teachers Association (NSTA), the Association for the Education of Teachers in Science (AETS), and the National Council of Teachers of Mathematics (NCTM).

Student Learning Outcomes

UNF Middle School (Math/Science) program graduates will be able to:

Content/Discipline Knowledge and Skills

- Develop a broad mathematics and science literacy knowledge base, skills, and dispositions to critically analyze and represent mathematical and scientific information related to unifying themes in mathematics and science.
- Experience, plan, and practice with a variety of effective teaching and assessment strategies.
- Understand the role of middle level teachers in areas such as interdisciplinary teams, flexible grouping arrangements, activity programs, and working with families, resource persons, and community groups.
- Become proficient in mathematical problem-solving, scientific inquiry, and procedural fluency, including the formulation, representation, and solving of mathematical problems and the basic and integrated science processes.
- Recognize students' prior knowledge and create supportive school environments as bases for learning of mathematics and science by adolescents.
- Plan and practice a variety of effective teaching and assessment strategies to proficiently teach mathematics and science to a diverse group of adolescents in middle level classrooms.
- Develop skills in the selection and use of technology to assist all students in learning.
- Demonstrate understanding of concepts and principles of behaviorism, social cognitive theory, information processing, constructivist views of learning, and motivation.
- Develop knowledge, skills, and dispositions to effectively manage the

classroom environment.

- Develop knowledge and skills to design, assess, and implement instruction that is inclusive of special needs learners and speakers of other languages.

Communication

- Develop a teaching portfolio which includes samples of performance throughout all field experiences to communicate to faculty and peers their understanding of the links between theory and practice.
- Use community-based contexts to further develop relationships among mathematics, science, technology, and society.
- Use technology, including internet resources, instructional technology (such as graphing calculators and spreadsheets), laboratory resources (such as probeware), and electronic communication tools in their own learning experiences and to support student learning of mathematics and science and connections to families and community.
- Demonstrate effective writing, speaking and listening skills in delivering instruction and engaging with students, fellow educators, school staff, parents, and members of the community.

Critical Thinking

- Choose researched-based methods and materials appropriate to a variety of teaching and learning situations using current and past curricula and trends.
- Demonstrate reflection and self-assessment related to improvement of instruction using measurable objectives.
- Demonstrate an integrated and functional grasp of mathematical and scientific ideas.
- Review contemporary research on attention, perception, and other processes critical to mathematics and science learning by young adolescents with varying learning abilities and modalities.
- Show evidence of logical thinking and justify methods, findings, and conclusions.
- Apply major science concepts in varying contexts.

Assessment Approaches

UNF graduates of the B.A.E program in Middle School Education (Math/Science) will demonstrate mastery of content knowledge and teaching skills through proficiency on course embedded assessments, activities, and critical task assessments in core, major, and clinical experiences at a proficiency level expected of a teacher candidate. It is

