Miami Dade College

Course Description

MAE4940 | Advanced Topics in Mathematics Education Practicum | 3.00 credits

The student will plan and implement mathematics instruction that meets the needs of a diverse population of learners. The student will learn to utilize action research methodology, assessment principles, educational neuroscience research, and best practices to identify and address issues related to mathematics learning in grades 6-12. Sixty hours of clinical experience are required.

Course Competencies:

Competency 1: The student will utilize concepts from human development and learning theories by:

1. Aligning instruction with state-adopted standards at the appropriate level of rigor
2. Sequencing lessons and concepts to ensure coherence and required prior knowledge
3. Designing instruction for students to achieve mastery
4. Selecting appropriate formative assessments to monitor learning
5. Using various data, independently and in collaboration with colleagues, to evaluate learning outcomes
6. Using a variety of data, independently and in collaboration with colleagues, to evaluate learning outcomes, adjust planning, and continuously improve the effectiveness of the lessons
7. Developing learning experiences that require students to demonstrate a variety of applicable skills and competencies

Competency 2: The student will maintain a student-centered environment that is safe, organized, equitable, flexible, inclusive, and collaborative by:

1. Organizing, allocating, and managing time, space, and attention resources
2. Managing individual and class behaviors through a well-planned management system
3. Conveying high expectations to all students
4. Respecting students' cultural, linguistic, and family backgrounds
5. Modeling clear, acceptable oral and written communication skills
6. Maintaining a climate of openness, inquiry, fairness, and support
7. Integrating current information and communication technologies
8. Adapting the learning environment to accommodate the differing needs and diversity of
9. students
10. Utilizing current and emerging assistive technologies that enable students to participate in high-quality communication interactions and achieve their educational goals

Competency 3: The student will utilize a deep and comprehensive knowledge of the subject taught by:

1. Delivering engaging and challenging lessons
2. Deepening and enriching students' understanding through content area literacy strategies, verbalization of thought, and application of the subject matter
3. Identifying gaps in students' subject matter knowledge
4. Assessing and adapting instruction to address preconceptions and misconceptions of subject matter.
5. Relating and integrating subject matter with other disciplines and life experiences
6. Employing higher-order questioning techniques
7. Applying varied instructional strategies and resources, including appropriate technology, to provide comprehensible instruction and to teach for student understanding
8. Differentiating instruction based on assessing student learning needs and recognizing individual student differences
9. Supporting, encouraging, and providing immediate and specific student feedback to promote student
10. Achievement
11. Utilizing student feedback to monitor instructional needs and to adjust instruction

Competency 4: The student will practice assessment by:

1. Analyzing and applying data from multiple assessments and measures to diagnose students' learning needs,

inform instruction based on those needs, and drive the learning process
2. Designing and aligning formative and summative assessments that match learning objectives and lead to mastery
3. Using various assessment tools to monitor student progress, achievement, and learning gains
4. Modifying assessments and testing conditions to accommodate learning styles and varying levels of knowledge
5. Sharing the importance and outcomes of student assessment data with the student and the student's parent/caregiver(s)
6. Applying technology to organize and integrate assessment information

Competency 5: The student will demonstrate improvement, responsibility, and ethics by:
1. Designing purposeful professional goals to strengthen the effectiveness of instruction based on students' needs.
2. Examining and using data-informed research to improve instruction and student achievement
3. Using a variety of data, independently and in collaboration with colleagues, to evaluate learning outcomes, adjust planning, and continuously improve the effectiveness of the lessons
4. Collaborating with the home, school, and larger communities to foster communication and support student learning and continuous improvement
5. Engaging in targeted professional growth opportunities and reflective practices independently and in collaboration with colleagues
6. Implementing knowledge and skills learned in professional development in teaching and learning

Competency 6: The student will understand that educators are held to a high moral standard in the community, and the effective educator adheres to the Code of Ethics and Principles of Professional Conduct of the Education Profession under State Board of Education Rules 6B-1.001 and 6B-1.006, F.A.C., and fulfills the expected obligations to students, the public, and the teaching professions by:
1. Applying the Code of Ethics and Principles of Professional Conduct to professional and personal situations
2. Identifying and applying policies and procedures for the safe, appropriate, and ethical use of technologies
3. Determining and applying the appropriate use and maintenance of students' information and records
4. Identifying and applying policies and procedures for the safe, appropriate, and ethical use of technologies
5. Determining and applying the appropriate use and maintenance of students' information and records

Competency 7: The student will plan and implement instruction, which provides K-12 students the opportunities for by:
1. Making sense of problems and persevering in solving them
2. Reasoning abstractly and quantitatively
3. Constructing viable arguments and critiquing the reasoning of others
4. Modeling with mathematics
5. Using appropriate tools strategically
6. Attending to precision
7. Looking for and making use of structure
8. Looking for and expressing regularity in repeated reasoning