Miami Dade College

Course Description

EEC3211 | STEM for Early Childhood Education I | 3.00 credits

This course will introduce instructional models to design lesson plans and instruction based on state standards. The student will incorporate educational theories to develop strategies for early childhood serving all learners. Ten hours of clinical experience is required in an approved kindergarten-third grade setting.

Course Competencies

Competency 1: The student will identify learning outcomes for young children in science by:

1. Listing disciplinary core ideas of physical, life, and earth/space sciences including characteristics and needs of living things, properties of matter, magnets, energy, conservation, balance, weather, climate, gravity, space, sound, and light.
2. Describing children's scientific inquiry processes and applications in indoor and outdoor environments to nurture curiosity through observation, hypothesizing, investigating, concluding, and reporting.
3. Explaining strategies that promote cognitive development, critical thinking, and understanding through hands-on exploration.
4. Planning developmentally appropriate science activities that foster curiosity, problem solving, decision making, and inquiry.
5. Providing opportunities for children to communicate scientific understanding verbally and in writing using visuals and data displays.
6. Aligning objectives, lesson plans, and activities with state standards and professional guidelines.
7. Developing lesson plans that promote observing, describing, measuring, classifying, documenting, and ordering.
8. Adapting science activities, materials, and environments for all learners including ELLs and children with special needs.

Competency 2: The student will identify learning outcomes for young children in math by:

1. Summarizing development of mathematical concepts including number, operations, patterns, algebra, geometry, measurement, data analysis, probability, and spatial reasoning.
2. Selecting developmentally appropriate activities, materials, and environments to promote problem solving.
3. Designing indoor and outdoor environments supporting emergent numeracy.
4. Planning activities that promote mathematical reasoning through play, inquiry, and collaboration.
5. Supporting communication of mathematical understanding verbally and in writing.
6. Aligning math objectives and instruction with standards.
7. Developing lessons promoting observing, measuring, classifying, and ordering.
8. Adapting math and science instruction for all learners.
9. Identifying community resources and field experiences supporting math learning.

Competency 3: The student will identify developmentally appropriate uses of technology with young children by:

1. Evaluating research on appropriate technology use.
2. Identifying advances in technology influencing curriculum and instruction.
3. Selecting appropriate early childhood software.
4. Integrating technology into programs.
5. Applying technology to support math and science learning.
6. Evaluating research on screen time and brain development.

Competency 4: The student will identify methods of program and setting evaluation by:

1. Using assessment data to inform instruction.
2. Applying varied assessment strategies to monitor progress.
3. Selecting environments and materials supporting math and science learning.
4. Differentiating instruction using formal and informal assessment.

Competency 5: The student will integrate science, math, and technology into classroom practice by:

1. Applying professional position statements.
2. Using Florida early learning standards.
3. Researching state standards.
4. Integrating math and science across curriculum.
5. Evaluating books, software, and manipulatives.
6. Promoting active play-based learning.
7. Supporting cross-curricular concept development.
8. Developing critical thinking and problem solving.
9. Differentiating for all learners and ELLs.
10. Applying exploration and discovery learning.

Competency 6: The student will apply human development and learning theories by:

1. Aligning instruction to standards.
2. Sequencing lessons.
3. Designing mastery-based instruction.
4. Using formative assessment.
5. Applying diagnostic data.
6. Developing varied learning experiences.

Competency 7: The student will maintain a student-centered environment by:

1. Managing time, space, and resources.
2. Implementing behavior systems.
3. Communicating high expectations.
4. Respecting linguistic and family backgrounds.
5. Modeling communication skills.
6. Maintaining supportive climates.
7. Integrating technologies.
8. Adapting environments.
9. Using assistive technologies.

Competency 8: The student will utilize comprehensive subject knowledge by:

1. Delivering engaging lessons.
2. Deepening understanding through literacy strategies.
3. Identifying knowledge gaps.
4. Addressing misconceptions.
5. Integrating disciplines.
6. Using higher-order questioning.
7. Applying varied strategies and technology.
8. Differentiating instruction.
9. Providing feedback.

10. Using student feedback to adjust instruction.