Catalog Description: In this course students will synthesize and demonstrate their understanding of mathematical concepts learned in the three prerequisite mathematics courses by successful completion of a final independent paper/project. Other activities will be assigned to connect and extend the student’s existing mathematical knowledge and experiences. Credit only for The Missouri Cooperative Online Masters Degree in Teaching and Learning – Elementary Education.

Course Description: The primary focus of this course is the development of the individual as a professional in mathematics education. The students will complete a final independent paper/project relevant to his or her environment/interests. This paper/project will synthesize the student’s mathematical knowledge and experiences.

Rationale: This course is intended as a capstone experience for the practicing elementary school teacher and will involve a final independent paper/project for each student relevant to his or her environment/interests. It is designed to tie together the student’s mathematical experiences.

Credit Hours: 3

Prerequisites: Successful completion of the program’s core courses and The Nature of Mathematical Thought, Mathematical processes, and Geometry and Measurement.

Conceptual Framework:

Course Objectives: The student will:
A. gain the knowledge necessary to model, identify, and teach problem solving.
B. conduct an action research project in consultation with their instructor
C. research/explore the mathematical content of a problem or topic within mathematics (i.e. magic square, Fibonacci numbers, figurate numbers, Pascal’s triangle)
D. demonstrate an understanding of the historical perspective of mathematics education.

Course Content: This course was developed in an outcomes-based format and was designed to conform to the 45 contact hour expectation common for three credit hour courses. The specific course content, outline in the course objectives, will be delineated by the instructional design team and the instructor of record.

1) Problem Solving
2) Historical Perspectives of mathematics Education
3) Action Research Project

Methods of Instruction: Discussion forums, e-mail, online exams and quizzes, focused discussion, reflections on web-based research on teaching.

Portfolio Requirement: A portfolio module will be developed to give evidence of competencies addressed in this class. A possible suggestion for the portfolio module for this course would be an action research project.

Research Component: Action research project. Research/explore the mathematical content of a problem or topic within mathematics.

Grading Policy: Specifics to be determined by the instructional design team and the instructor of record
- Action Research project 50%
- Research on Mathematical Problem 25%
- Participation in Online Discussion 15%
- Quizzes and Other Assignments 10%
Course Schedule: To be determined by the instructional design team and the instructor of record.

Textbooks (Title, Author, ISBN): Selected by the instructional design team and the instructor of record. Suggested text:


Library Review: A review of literature will be required to support the action research project Issues of Teaching Children Mathematics, Mathematics Teaching in the Middle School, Arithmetic Teacher (back issues), Mathematics Teacher, Journal for Research in Mathematics Education, School Science and Mathematics


Other Required Software, Materials, and Equipment: Additional materials may be selected by the instructional design team and the instructor of record.

Statement of Non-Discrimination: Missouri’s public universities are equal-opportunity educational institutions and do not discriminate on the basis of race, color, national or ethnic origin, religion, sex, or sexual orientation for programs, activities, or employment, in accordance with the Civil Rights Act of 1964 and Title IX of the Educational Amendments.

Statement on Academic Honesty: Missouri’s public universities are committed to intellectual integrity in their academic pursuits. Academic dishonesty constitutes unacceptable behavior and includes unauthorized assistance in completing required course assignments or testing. Unauthorized assistance includes electronic transfer. Plagiarism, that is, submitting someone else’s work or part there of, as your own, is considered to be cheating.

Breaches if intellectual integrity will result in disciplinary measures, based on the policies and procedures of the student’s home instruction. These may include:
1) a failing grade for a particular assignment;
2) a failing grade for the course;
3) suspension for various lengths of time from the university; and/or
4) permanent expulsion from the university.

Statement on Student Disabilities: Reasonable accommodations will be provided upon request for persons with disabilities in accordance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. If you are a person with a disability, either learning related or physical, who requires an accommodation to participate in university programs, services, or activities, please contact the disability services staff at your university of record.

Expected Enrollment: 20-25

Special Fees: None

Bibliography:


