

Instructor: Jane Smoke

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Office Hours: **By arrangement**

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Prerequisites: Math 260, concurrent enrollment in both EDCS 311 and Math 355, and permission of instructor.

Required Text: Teaching Mathematics in Secondary and Middle School, Cangelosi; and handouts from the instructor.

Required Materials: Online access to Blackboard and LiveText.

Course Description:

Prospective teachers will learn and use the methods and materials needed to help students learn mathematics with emphasis on the use of manipulatives, problem solving, cooperative learning, and communication.

Course Rationale:

To meet the expectations for mathematics education, a shift in content, instruction and assessment practices are crucial. The Principles and Standards for School Mathematics (NCTM, 2000) outlines the specific changes needed in pre-service mathematics education: "Prospective teachers must be taught in a manner similar to how they are to teach by exploring, conjecturing, communicating, reasoning, and so forth." In addition, "all teachers need an understanding of both the historical development and current application of mathematics. Furthermore, they should be familiar with the power of technology." This course employs the constructivist model of learning in which students, in interactions with their physical and social environments, create knowledge.

Part of our mission is to accommodate for differences among students in order to help all students learn to high levels. Excellent assessment practices are stressed; all assessment and instructional activity are integrated and used to promote better communication between the teachers and the students. Students create academic units, and engage in peer teaching. Part of the lesson plan includes an explanation of the assessment practices. After teaching the lesson students receive constructive feedback through peer, self, and instructors' comments. Students are introduced to and encouraged to become involved in the professional community of mathematics educators. This is done by becoming familiar with and encouraged to join state and national professional organization such as NCTM and WSMC.

Learner Outcomes:

Learner Outcomes: Based on WAS 180-78A-270, consistent with Washington State and NCATE Accreditation Standards and CWU's Center for Teaching and Learning goals and objectives, upon completion of the course the learner will demonstrate skill in:

Learner Outcomes	Performance Indicators
<p>I. Classroom Management</p> <ol style="list-style-type: none"> 1. Review and reflect on different philosophies, theories, and research findings regarding effective classroom management and discipline. 2. Examine and analyze different approaches to management and discipline. 3. Develop a personal classroom management/behavior management plan 	<ol style="list-style-type: none"> A. Classroom Management Classroom Observation/Reflective Paper/Sharing B. Group Activity/Presentation on Theory/Model of Discipline (in class) C. Personal Classroom Management Plan (Post on Live Text) D. Reflection of Classroom Management in Field Experience classroom.
<p>II. Curriculum Development</p> <ol style="list-style-type: none"> 1. Review and describe current standards-based efforts in education. 2. Review and describe how curriculum can be relevant, inviting, integrative, culturally sensitive, exploratory, academically challenging, and developmentally responsive. 3. Reflect upon and describe the implications of integrated curriculum design in past through present practices. 4. Describe the interdisciplinary nature of knowledge and strategies for connecting subject areas in meaningful ways. 5. Design an integrative and/or integrated curriculum unit that incorporates the ideas, interests, diverse needs, and experiences of a group of students. 6. Define educators' roles in the total curriculum/instruction process. 	<ol style="list-style-type: none"> A. Curriculum Development Paper Based on Interviews and Readings-due B. Demonstrate understanding of Learning Styles and Multiple Intelligences in sample lesson plan. C. Integrated Unit Plan: Content <ul style="list-style-type: none"> ✚ Deciding on outcomes, goals, intentions, and purposes. ✚ Deciding on content, strategies, and skills. ✚ Deciding on materials, resources, and organizational patterns ✚ Deciding on measures of student learning. D. Reflection of Curriculum in Field Experience classroom.
<p>III. Instructional Design and Strategies</p> <ol style="list-style-type: none"> 1. Understand and demonstrate the lesson plan process and critical components. 2. Describe long and short term planning process. 3. Describe and demonstrate a variety of inductive and deductive teaching methods. 4. Describe and demonstrate how to use grouping and questioning in the classroom. 3. Describe and use strategies that positively influence the learning environment and students' achievement. 4. Describe how to make accommodations for learners with exceptionalities and from diverse cultural backgrounds. 	<ol style="list-style-type: none"> A. Model teaching of instructional approach and teaching method (in class) B. Portfolio of samples of lesson plans and assessments. C. Integrated Unit Plan: Lesson Plans/Content D. Professional Presentation of Integrated Unit to class E. Written Reflection on Unit Preparation Process F. Reflection of Instructional Design and Strategies in Field Experience classroom.
<p>IV. Assessment and Evaluation Practices</p> <ol style="list-style-type: none"> 1. Discuss the essential role of assessment and evaluation in the instructional process. 	<ol style="list-style-type: none"> A. Portfolio of samples of lesson plans and assessments.

<p>2. Review and evaluate formal, informal, and performance assessment techniques based on their advantages and limitations.</p> <p>3. Describe how assessment strategies can be used in various learning environments, to achieve specific achievement targets and academic excellence.</p> <p>4. Develop a variety of formal and informal assessments that are developmentally responsive and involve students in self-assessment.</p> <p>5. Identify management strategies for assessment and evaluation data.</p>	<p>B. Integrated Unit Plan: Assessment</p> <p>C. Reflection of Student Assessment in Field Experience classroom.</p>
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Candidates will demonstrate that they support a positive disposition toward mathematical processes and mathematical learning in the areas of:

- ❖ Attention to equity
- ❖ Use of stimulating curricula
- ❖ Effective teaching
- ❖ Commitment to learning with understanding
- ❖ Use of Various assessments

Candidates will demonstrate that they possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning. The candidate will demonstrate that s/he...

- ❖ 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.
- ❖ Selects and uses appropriate concrete materials to enhance the learning of mathematics.
- ❖ Uses multiple strategies, including listening to and understanding the ways students think about mathematics, to assess students' mathematical knowledge.
- ❖ Plans lessons, units, and courses that address appropriate learning goals, including those that address local, state, and national mathematics standards and legislative mandates.
- ❖ Participates in professional mathematics organizations and uses their print and online resources.
- ❖ Demonstrates knowledge of research results in the teaching and learning of mathematics.
- ❖ Uses knowledge of different types of instructional strategies in planning mathematics lessons.
- ❖ 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.
- ❖ Develops lessons that use technology's potential for building understanding of mathematical concepts and developing important ideas.

Professionalism:

Professionalism in teaching is marked by always treating people with respect, being on time, and being prepared. Therefore, you must come to class on time and prepared. Also when visiting/observing in the public schools you must treat the students and other teachers with respect, act & dress professionally, be on time, and be well prepared. It is very important to be at your school at least 10 minutes before your scheduled class (remember you must check in at the office when entering the school). If your instructor feels you have not acted professionally, you will get one verbal warning; the next infraction will result in being dropped from the course.

Assessment and Evaluation Guidelines:

The course's instructional and assessment strategies are designed to inform the students on their progress in achieving these performance outcomes. The electronic portfolio, disposition papers, lesson plans, teaching experiences, and reflection on teaching experiences give multiple assessments of achievement in meeting the performance outcomes.

Disposition Papers:

Four papers will be assigned related to the four disposition standards. These papers will be written responses to questions related to class discussion, handouts, observation experiences, research articles, and internet sites, and should be 2-3 pages in length. Remember to cite your sources to support your conclusions. Students will post this papers on LiveText. There is a 10% penalty for each day these papers are late. These disposition papers will become part of your final portfolio. (25 points each)

Lesson Plans:

Students will teach up to three lessons to peers in class. Students will follow the lesson plan formats and demonstrate instructional strategies presented in class and observed in their field experiences. Students will design and present lessons for whole groups and small groups that include all parts of a basic lesson plan. The lesson plans presented in class will become part of your final course portfolio. (50 pts each)

Peer Assessment:

On two occasions, you will assess the teaching of your peers, using the format provided by the instructor. Copies of these assessments will be given to both your colleague and to me. Reviews of your teachings become part of your final course portfolio. (5 points each)

Field Experiences:

Students are expected to spend minimally two (2) hours a week in a secondary math classroom. Students will observe the teacher perform classroom management, lesson planning, lesson delivery, and assessment of student learning and understanding. Students, with permission from the classroom teacher, will help students during student independent work time or as directed by the classroom teacher. It is the responsibility of each student to find a field experience classroom.

Portfolio:

The final assessment for the course is a LiveText portfolio containing all lesson plans, disposition papers and assessments of your teaching (self-reflections, instructor), worth 100 points. Create a persuasive reflective paragraph aligned with each of the 14 standards (listed above under "Learner Outcomes") demonstrating that you have mastered each standard. As the artifacts in the portfolio will have been separately assessed, the portfolio grade hinges on completeness and the quality of your reflection paragraphs. The portfolio is due on Friday, March 16th at noon.

Recall that a reflection paragraph is your chance to step back and analyze how each standard fits into your personal philosophy of teaching mathematics. (100 points)

Assessment and Evaluation--Grading Procedures

Assessment and evaluation will be both formative and summative. The formative assessment will include assignments, attendance, class participation, and professional behavior. Summative assessments will include writings, presentations, other assigned tasks, and student performance. The instructor should be given a hard copy of all assignments (including Live Text assignments which will be posted on LiveText) on due date.

University Standards (from CWU Catalog) will be employed. Grades are based on total number of points as well as performance evaluation related to course requirements identified in the syllabus and communicated in class throughout the quarter.

Grading Scale:

1. "C" grade indicates that a student has made substantial progress toward meeting the objectives of the course and has fulfilled the requirements of the course.
2. Grades above "C" are used for students who have demonstrated some degree of superiority in the requirements of the course.
3. "B" grade is for students whose work is superior but does not warrant the special distinctiveness of the "A". Work is above the general requirements of the assignment.
4. "A" grade is reserved for those students who have excelled in every phase of the course. Quality work is done beyond the basic assignments and performance.

Students will be given opportunities, are encouraged to provide feedback as the course progresses (formative), and will have an opportunity to evaluate the course at the end (summative).

Assignment Point Summary:

Disposition Papers (4)	100 points
Lesson Plans:	100 points
Peer Assessments (2):	10 points
Portfolio:	100 points

How to Succeed in this Course:

Take the responsibility for your own achievement of the performance objectives. Use the activities, assignments, assessments and people such as the instructor or other students in the course to ensure that you understand the mathematical teaching concepts and can demonstrate this understanding in the format required by the performance objectives.

Disability Services:

Students with disabilities may arrange for academic adjustments by providing the instructor with a copy of the "Confirmation of Eligibility for Academic Adjustments" from the Disability Support Services Office as soon as possible. To obtain this form, contact the Disability Support Services Office at the main campus at dssreceipt@cwu.edu or (509) 963-2171.

Honor, Respect, and Academic Honesty:

Each of us should consider our placement at this institution to be a privilege. We need to have respect for one another, and for ourselves. In light of these facts, cheating in any form will not be tolerated. You are encouraged to discuss the concepts and topics in this course when writing your papers, however, your writing should reflect your own ideas and synthesis of the course material. The word "plagiarize" is defined by Merriam-Webster as "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source." This is a very serious offense, and jeopardizes your position in the program.