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Required Materials: TI-83+ or TI-84 calculator and computer access to <http://www.livetext.com>.

COURSE DESCRIPTION:

This course is designed to prepare preservice secondary teachers for their mathematics education program. Students will study the basic processes of this program: Problem solving, communication (both oral and written) and use of technology. These three processes will be integrated and immersed in mathematical content. Students will be assessed with an online electronic portfolio using Live Text (<http://www.livetext.com>) In this course, students initiate the electronic portfolio which is used in all subsequent education courses in the program. The portfolio will be completed in MATH 499E, at which time students will have met all of the program, NCATE, NCTM, and Washington State standards for secondary mathematics teachers.

COURSE RATIONALE:

To meet the expectations for mathematics education for secondary teachers, a shift in content, instructional and assessment practices is crucial. The Curriculum and Evaluation Standards of School Mathematics (NCTM, 1989) outlines the specific changes needed in pre-service mathematics education. “Today’s jobs demand the use of mathematically driven technological tools. If schools do not have a level of technology equivalent to the level found outside of schools, and if they do not prepare students appropriately with it, then they are placing their students at a serious disadvantage.” In addition, “it means ensuring that teachers have adequate technical and mathematical knowledge to provide appropriate support for their students.” This course is designed to allow for the needed changes in mathematics education and prepare preservice secondary students with the necessary mathematical content to implement a modern mathematical curriculum. Thus, this course emphasizes learning mathematics using technology, problem solving strategies, and mathematical communication.

LEARNER OUTCOMES:

Students will use an electronic portfolio, lesson preparation & presentation, and participation in and writing about mathematical activities to demonstrate their mastery of the following learner outcomes.

Learner Outcome	Assessment
Initiate Mathematics Education Proficiency Portfolios (MEPP)	Students will present electronic portfolios, using solutions to problems in Math 299E as primary portfolio artifacts.
Solve problems using a variety of strategies	Students will present solutions to problems in written and oral formats.
Communicate mathematical understanding	Students will explain concepts and procedures using electronic tools such as web-based technology, mathematical software, presentation software, word-processing software for mathematics and calculator-based technology.
Mathematical reasoning	Students will explain the logic of their mathematical conclusions using valid mathematical reasoning.
Making connections	Students will explain the connections between mathematical concepts and also with real-world situations.
Representations	Students will explain mathematical ideas using multiple representations.
Demonstrate various presentation and calculation techniques, including calculator-based technology, mathematical software, presentation software, and technical word-processing software	Students will prepare and present electronic portfolios, using solutions to problems in Math 299E as primary portfolio entries.
Demonstrate oral and written proficiency in technical presentation of mathematical and scientific material	Students will give written and oral mathematical presentations.

ASSESSMENT & EVALUATION:

Teaching Philosophy:	10 points
Field Experience Journal:	40 points
Electronic Portfolio Construction:	110 points
Mathematical Papers:	75 points (3 @ 25 points each)
Activities & Exercises:	40 points
Problem-Solving Lesson:	25 points
Final Presentation:	20 points
Participation, Citizenship & Attendance:	20 points

TEACHING PHILOSOPHY:

- You will write up a statement of your mathematical teaching philosophy, which may differ from the teaching philosophy you have been asked to write in an earlier or current education course. Although the first draft is due early in the quarter, this document should be revised and resubmitted at the end of the course. As your personal teaching philosophy will evolve as you gain more theoretical knowledge and practical classroom experience, we will revisit this document in later courses. (10 points).

FIELD EXPERIENCE:

- You will be placed at a local high school or middle school as a volunteer tutor to gain experience with teaching students in a one-on-one environment. You are expected to behave professionally at all times on the school grounds and around students. You are required to tutor for a minimum of 3 hours per week at times arranged between CWU and the individual school.
- Each week, you will submit a 1-page reflection on your experience working with students. For this reflection, focus on one student that you helped in your tutoring session. Identify at least one mathematical strength and weakness of this student, either in content or in mathematical practice. Provide evidence of how you've pinpointed the students' strengths and weaknesses, recreating mathematical errors or insights as needed. To maintain confidentiality, refer to this student by first initial only (that is, 'Steve' becomes 'S'). These may be neatly hand-written, and are due each Monday at 9:00 am, to be returned to you in the following Thursday's class. (40 points)

ELECTRONIC PORTFOLIO: Most of the assessed assignments from this course become artifacts in the electronic portfolio. The portfolio must be completed and submitted by **12:00 noon on Friday 6/7/2013. The portfolio is mandatory – you cannot pass this class without completing the portfolio.**

- Complete the TEACHING MATHEMATICS section of the portfolio. (10 pts.)
- Complete the MATH 299E section of the portfolio (100 pts). The artifacts must be entered into LiveText accompanied by a reflection paragraph demonstrating your mastery of each portfolio standard. The points are assigned for the choice of artifacts and the quality of reflections, so give them thought.
- You should have at least 2 artifacts for each of the six standards (problem solving, communicating mathematically, mathematical reasoning, making connections, using multiple representations, and technology), and more if you choose. The same document may be an artifact for no more than two standards.
- Share the portfolio with Dr. Black for assessment.
- Send Dr. Black an email when you have shared your portfolio. Half of you won't do it right, so do not assume that your portfolio has been accepted until you receive a confirmation email.

MATHEMATICAL PAPERS, ACTIVITIES, & EXERCISES:

- Three problems must be solved and then written up according to the given guidelines. (25 points each) Once a grade has been assigned, you may use your paper as an artifact in Live Text accompanied by a persuasive reflection paragraph.
 - Two of the in-class activities will be written up and collected, and may be used in the final portfolio at your discretion. (10 points each)
 - In preparation for the Teaching Performance Assessment that occurs during student teaching, we will analyze the uses and purposes of academic language in mathematics, resulting in a short exercise that will be collected and graded. (10 points)
 - We will compare and contrast the new Common Core Washington State Standards with the NCTM process standards, resulting in a short exercise that will be collected and graded. (10 points)
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LESSON PLAN & MODELING PRESENTATION:

- With a partner or small group, you will write a lesson plan for a 20-minute mini-lesson that uses problem solving with technology. (25 points)
- During the last day of class, your group will teach your planned mathematics activity. (20 points)

GRADING: Grades will be determined by the following percentages:

93 - 100%	A	83 - 87 %	B	73 - 77 %	C	63 - 67 %	D
90 - 93 %	A-	80 - 83 %	B-	70 - 73 %	C-	60 - 63 %	D-
87 - 90 %	B+	77 - 80 %	C+	67 - 70 %	D+	0 - 60 %	F

SCHEDULE/ATTENDANCE:

The class schedule is subject to change based on the needs of the students. Your attendance is essential for you to be able to complete many of the course activities and work toward the stated course outcomes. *Missing a scheduled class session is highly discouraged.*

HOW TO SUCCEED:

Take responsibility for your own achievement of the stated performance objectives. Use the activities, assignments and projects, as well as human resources (such as the professor and other students in the course) to ensure that you understand the mathematical and pedagogical concepts in the form stated in the performance outcomes.

DISABILITY SERVICES:

Students with disabilities wishing to use academic adjustments in their CWU classes must be registered with Disability Services (DS). Information about the DS intake process may be obtained by emailing cds@cwu.edu or calling (509) 963-2171. Qualified students with disabilities may establish academic adjustments in this class by either sending me their official on-line accommodation request or speaking with me to establish the manner in which requested adjustments will be delivered.