

*Orientation Seminar, Math 299E*  
*2 credits, Fall 2006*

Instructor: Dr. Teri Willard  
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Meeting Time: 2:00 – 2:50, Tues. & Thur.

Meeting Place: Bouillon Hall, Room 106  
Office Hours: Tu & Th 1:00–2:00, or by  
appointment

**Texts:** (1) handouts and Internet sites;

(2) *Principles and Standards for School Mathematics* by the National Council of Teachers of Mathematics (NCTM). It is available online at [www.nctm.org](http://www.nctm.org). (You can get a trial membership for free (90–day).);

(3) Live Text: You will need to purchase this for your own use.

**Supplies:** calculator (should be a graphing calculator, such as a TI83), several colored portfolios (folders), 3–ring binder with dividers for handouts

**Course Description:** This course is designed to introduce preservice secondary teachers to the mathematics education program. Students will experience the basic processes of this program: problem solving/modeling, writing, teaching, and use of technology. These processes will be integrated with mathematical content. In this course, students will begin construction of a mathematics education electronic portfolio. The electronic portfolio will be completed in Math 499E at which point students will have to meet all the program, NCATE, NCTM, CTL's Conceptual Framework, 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 practices, and assessment practices is crucial. The *Professional Standards for Teaching Mathematics* (NCTM, 1991) states that

To reach the goal of developing mathematical power for all students requires the creation of a curriculum and an environment, in which teaching and learning are to occur, that are very different from much of current practice. The image of mathematics teaching needed includes elementary and secondary teachers who are more proficient in

- selecting mathematical tasks to engage students' interest and intellect;
- providing opportunities to deepen their understanding of the mathematics being studied and its applications;
- orchestrating classroom discourse in ways that promote the investigation and growth of mathematical ideas;
- using, and helping students use, technology and other tools to pursue mathematical investigations;
- seeking, and helping students seek, connections to previous and developing knowledge;
- guiding individual, small–group, and whole–class work.

**Learner Outcomes:** Students will use an electronic portfolio, a lesson presentation, and mathematics activities to demonstrate 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 entries.
Solve problems using a variety of strategies	Students will present solutions to problems using electronic tools such as web-based technology, mathematical software, presentation software, word-processing software for mathematics, and calculator-based technology.
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.
Use Mathematical Reasoning	Students will explain the logic of their mathematical conclusions using electronic tools such as web-based technology, mathematical software, presentation software, word-processing software for mathematics, and calculator-based technology.
Make Connections	Students will explain the connections between mathematical concepts and between real-world situations and mathematics using electronic tools such as web-based technology, mathematical software, presentation software, word-processing software for mathematics, and calculator-based technology.
Use Mathematical Representations	Students will explain mathematical ideas using multiple representations and electronic tools such as web-based technology, mathematical software, presentation software, word-processing software for mathematics, and calculator-based technology.
Demonstrate various presentation and calculation technologies, including calculators, mathematical software, presentation software, and technical word-processing software	Students will present electronic portfolios, using solutions to problems as primary portfolio entries. Students will prepare and deliver a lesson using technology, discovery methods, and/or hands-on materials.
Demonstrate oral and written proficiency in technical presentations of mathematical material	Students will prepare and deliver oral presentations to demonstrate competencies in the areas of problem solving, reasoning, connections, and representation. Students will write complete solutions and explanations for open-ended problems, relating the solutions to the NCTM Standards.

*Work and Assessment:* Please remember that organization, neatness, and legibility count!

Writing Assessments (240 points) There will be six (6) [40 points each] writing assessments that will be part of your electronic portfolio. Each writing assessment will document your accomplishments in one of the six areas of problem solving, reasoning, communication, connections, representation, and technology. You will be given “Three Big Problems” to use to demonstrate these areas. A problem may be used more than once. You will submit each assessment to me and then make needed corrections before posting on Live Text. Each assessment will be accompanied by at least one “artifact” that represents how you accomplished the particular goal. **IF** you submit the papers on time and make the required corrections, you will receive full credit for these papers. **IF** a paper needs more than one rewrite or is not turned in on the due date, the instructor reserves the right to “edit” the score.

Problem–Solving Presentation (30 points) On your own, you will demonstrate how you would explain the solution to a problem to a student or class of students. You will be given a specific problem to solve. This will be a 10–minute presentation in class.

Lesson Presentation (100 pts): In groups of 3 – 4, you will prepare a 40–minute lesson that will include some type of technology, discovery, and/or hands–on materials. You will hand in a written plan (50 points) one week prior to your presentation. I will provide feedback on the lesson and you will present the lesson to the class (50 points). At the end of your presentation, the class will provide your group with feedback on the lesson. This is a group grade.

Electronic Portfolio (100 pts): By November 28, you will need to have your six (6) writing assessments and accompanying artifacts posted on Live Text in final form and **on time**. (Final form means that all corrections have been made to the originally submitted papers.).

*Grades: total points = 470 from above*

93- 100% A	90- 92% A-	87- 89% B+	83- 86% B	80- 82% B-	77- 79% C+	73- 76% C	70- 72% C-	67- 69% D+	63- 66% D	60- 62% D-	<60% F
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### *Attendance and Professionalism*

If you are to fully benefit from this class, you must attend class. As you prepare to become a teacher, you need to become accustomed to setting a good example for students. Attendance demonstrates professionalism and dedication. High quality work and organization demonstrate professionalism, as well. In addition, work must be turned in on time to receive full credit. The instructor reserves the right to make final decisions on any extraordinary circumstances that may interfere with your ability to turn your work in on time.

### *Schedule*

You have a tentative calendar. The schedule may change due to unforeseen events.