

# INSTRUCTIONAL PRACTICES FOR TEACHING MATHEMATICS

MATH 325 | FALL QUARTER 2013

## **INSTRUCTOR:**

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## **COURSE DESCRIPTION:**

Prospective teachers will learn and use the methods and materials needed to teach secondary school students mathematics with emphasis on use of mathematical modeling and technology and positively participate in a professional learning community of mathematics educators. The rubrics for these pedagogy activities are aligned with the Washington State TPA for secondary mathematics, National Educational Technology Standards (NETS), and EFC 416 livetext assessments. This course can be used as substitution for EFC 416 for students who are in the Teaching Secondary Mathematics Program.

## **COURSE RATIONALE:**

*Curriculum and Evaluation Standards for School Mathematics* (NCTM, 2000) outline specific changes needed in pre-service mathematics education. To meet the expectations of national stakeholders, pre-service candidates must develop knowledge, skills, and dispositions that enable the best K-12 teaching and learning possible. This will be influenced by the latest brain research and the use of best practices in mathematics. Since many teachers will teach as they were taught, it is crucial that pre-service training include both elements. In particular, effective learning will take place when student(s) (a) preconceptions are engaged, (b) they do activities consistent with professionals in the field, and (c) they are aware of how (and what) they learn. Research indicates the best learning is based on discovery via inquiry and collaborative problem solving in balance with direct instruction. Therefore, the training as future mathematics educators will emphasize these elements in a field-based teaching context.

## **COURSE GOALS:**

- Teacher candidates will complete and submit a Learning Segment that meets all the requirements of the TPA for secondary mathematics on Livetext. CWU math faculty trained in TPA assessment protocol will evaluate the Learning Segment as a benchmark assessment of their teaching preparation.
- Teacher candidates will identify and adapt the curriculum and teaching methods to meet the diversity needs of their students.
- Teacher candidates will discuss and demonstrate their ability to positively participate in the profession of mathematics teachers.
- Teacher candidates will appropriately and effectively use technology as a productivity tool and to teach their students mathematics (NETS) that is aligned to the CCSS Math.

## **COURSE RESOURCES:**

- Blackboard account with enrollment in MATH 325
- LiveText account
- Handouts provided by the instructors
- CCSS Math – internet access
- Access to Washington State Academic Learning Requirements for Math  
<http://www.k12.wa.us/CurriculumInstruct/default.aspx>
- Access for digital camera (can be checked out of Math Dept.)
- Finger Print clearance

**Course Objectives:**

By the end of the course, teacher candidates will be able to:

Outcomes	Assessment	Standards
plan for instruction and assessment. Candidates will demonstrate this by describing their plans for the learning segment and explain how their instruction is appropriate for the students they are teaching.	Learning segment taught in a local math classroom and assessed using TPA rubrics. Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
effectively instruct and engage students in learning aligned to the CCSS Math. Candidates will demonstrate this by reflecting on their instruction and from their field supervisor's evaluation.	Learning segment taught in a local math classroom and assessed using TPA rubrics. Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
assess student learning, by analyzing student work, and using this information to guide instruction and plan next step instruction. Candidates will demonstrate this by reflecting on their assessment practices and from their field supervisor's evaluation.	Learning segment taught in a local math classroom and assessed using TPA rubrics. Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
identify the language demands required by the math lessons they are planning and directly teach both language function and vocabulary in a manner that develops math understanding.	Learning segment taught in a local math classroom and assessed using TPA rubrics. Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
communicate learning targets and require students to reflect on their progress in meeting the learning targets.	Learning segment taught in a local math classroom and assessed using TPA rubrics. Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
discuss and demonstrate their ability to positively participate in the profession of mathematics teachers.	Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
identify and adapt the curriculum and teaching methods to meet the diverse needs of their students.	Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
Demonstrate appropriately and effectively use technology to teach their students mathematics that is aligned to the CCSS Math.	Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V
Demonstrate appropriately and effectively use technology as a resource and productivity tool to teach more effectively.	Artifacts and reflections will be placed on the livetext portfolio.	CTL 1 WAC V

**ASSIGNMENTS AND EVALUATION GUIDELINES:**

The instructional and assessment strategies for this course are designed to inform you of your progress in achieving the performance outcomes. The instructors will give you feedback on your progress in meeting performance outcomes.

Assignment	Points
Field Teaching Blog and Time Log	60
Group Technology Activity in a Professional Learning Community – Illustrative Math	60
Edmodo documents demonstrating technology standards (60 points)	60
Professional Development Plan (30 points)	30
Technology Lesson Plan/Activity – (Post on Better Math)	40
Field Observations (self, peer, instructor) completed and attached on Livetext Portfolio	30
Learning Segment formatively assessed (20 points)	20
Technology as an accommodation for learning math – (Post on Better Math)	30
Livetext Portfolio	100
<b>Total Points</b>	<b>430</b>

Candidates will be assigned tutoring/teaching positions after the first week. Candidates can expect to observe at the beginning, then support instruction of the cooperating teacher, and finally teach at least two lessons. Expect to spend at least 30 hours working in 6 – 12 classrooms and because of this classroom time will be reduced by 10 to 15 hours.

### **Grading Scale**

93-100% = A, 90-93% = A-, 87-90% = B+, 83-87% = B, 80-83% = B-, 77-80% = C+, 73-77% = C, 70-73% = C-, 67-70% = D+, 63-67% = D, 60-63% = D-, 0-60% = F Please see the CWU Catalog for the eligibility requirements for an incomplete (I).

### **Performance Expectations**

All of the assignments and directions can be found in the Assignments menu of Blackboard. All lessons can be found in the Content menu and all resources can be found in the Links menu.

### **COURSE POLICIES:**

#### **Instructor Feedback/Communication**

I will be reading the Discussion Boards and replying to messages occasionally. You will receive specific feedback on your Syllabus Draft and your Course Syllabus in the form of electronic comments appended to your electronic submission. I will use the Announcements tool in Blackboard to communicate changes to the course and other course information.

#### **Suggestions for Success**

Take the responsibility for your own achievement of these performance objectives. You can get individual help by e-mail or in person in my office. If at any time you have trouble-using Blackboard or do not understand an assignment make sure to contact the instructor. Use the activities, assignments, assessments and people such as the instructor to insure that you understand the mathematical teaching concepts and can demonstrated this understanding in the form of the performance objectives.

#### **Student Feedback/Communication**

I welcome all feedback on the course. My preferred method of communication with individual students is via email. I am also available for office hours. If you experience a legitimate emergency (according to my standards) that will prevent you from completing required coursework on time, I expect you to communicate with me at the earliest reasonable opportunity. Please state the nature of the emergency, and when you expect to turn in the coursework.

#### **Submitting Electronic Files**

All electronic files must be submitted in .doc or .pdf format. If you do not have Microsoft Word, you can download Open Office Writer for free at <http://www.openoffice.org/>. This will allow you to open the instruction files, make changes and save in .doc or .pdf.

#### **Late and Uncompleted Work**

- If extenuating circumstances exist, contact instructor.
- All course assignments must be completed to pass the course.

### **UNIVERSITY POLICIES:**

#### **Academic Integrity**

Academic Integrity is a standard set for this course. Students are expected to complete all of their coursework and assignments using their original words and ideas and will properly cite the words and ideas of others. Students are also expected to be honest in their interactions with the instructor. A student found to have not upheld these expectations is subject to failing this course and shall be subject to disciplinary action or sanction. The University catalog defines the term “academic dishonesty” in all its forms including, but not limited to:

- cheating on tests;
- copying from another student's test paper;
- using materials during a test not authorized by the person giving the test;
- collaboration with any other person during a test without authority;
- knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of an unadministered test or information about an unadministered test;
- bribing any other person to obtain an unadministered test or information about an unadministered test; substitution for another student or permitting any other person to substitute for oneself to take a test; plagiarism" which shall mean the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit;
- "collusion" which shall mean the unauthorized collaboration with any other person in preparing work offered for credit.

Documented incidences of Academic Dishonesty will be referred to Office of the Vice President of Student Affairs.

### **Special Needs**

If you have a disability that may prevent you from meeting course requirements, contact the instructor immediately to file a Student Disability Statement and to develop an Accommodation Plan. Course requirements will not be waived but reasonable accommodations will be developed to help you meet the requirements. You are expected to work with the instructor and the CWU Disability Support Specialist to develop and implement a reasonable Accommodation Plan. For contact information at Center for Disability Services (CDS) please visit <http://www.cwu.edu/~dss/cms/>.