

# Math 524.1 Course Syllabus

*Method and Materials for Jr. High/Middle School (3 credits)*

*Summer 2004*

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**Office Hours:** 11:30 – 12:30 AM MTW or by appointment

**Course Description:** This course is required in CWU's summer graduate MAT program. The course is designed to provide a general framework in which to discuss problems and methods associated with teaching mathematics at the junior high/middle school level. The course will cover curricular, pedagogical and assessment issues associated with middle school mathematics with a strong emphasis on the suggestions of the NCTM Principles and Standards for School Mathematics. Some of the issues discussed will address the Washington State Commission on Student Learning and other performance-based issues. Readings from research-based books and journals will provide additional discussion topics.

**Course Rationale:** To meet the expectations for mathematics education teachers a shift in content, instructional and assessment practices are crucial. The Curriculum and Evaluation Standards of School Mathematics (NCTM, 2000) outlines the specific changes needed in mathematics education. "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 and uses action-research to generate a genuine change in the way we approach changes in the way we teach mathematics.

**Text:** Handouts

**Learner Outcomes and Assessment Strategies:** Students will demonstrate their ability to perform the following outcomes through the assigned assessment strategies. Teachers of mathematics:

Learner Outcomes	Assessment Strategies
Will use their knowledge of student diversity to affirm and articulate how full participation and continued study of mathematics can be enhanced for every students.	Group Teaching Projects Papers
Will be able to use and discuss the appropriate use of technology to support the learning of mathematics in many different educational situations.	Group Teaching Projects Papers
Will be able to use and discuss the appropriateness of a variety of physical and visual materials for exploration and development of mathematical concepts.	Group Teaching Projects Papers
Will be able to discuss and implement appropriate student groupings such as collaborative groups, cooperative learning, and peer teaching.	Group Teaching Projects Papers
Will be able to design curriculum that motivates and engages students.	Group Teaching Projects Papers
Will be able to use and discuss a variety of assessment methods to monitor their own teaching effectiveness as it relates to students making connections.	Group Teaching Projects Papers
Will be able to discuss and implement changes in instructional methods based on formal research and	Group Teaching Projects Papers

personal research.	
Will be able to critique and demonstrate good use of formal and informal instructional, assessment, and evaluation practices.	Group Teaching Projects Papers
Will be able to develop and modify educational practices through action-research.	Group Teaching Projects Papers
Will be able to lead in professional development activities of mathematics educators.	Group Teaching Projects Papers

**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. Grades will be based on active participation in all class discussions and activities, action-research project, papers, portfolio, and oral presentation.

**Attendance:** Attendance is essential as many of the projects are done in groups and the reading material is given and discussed daily.

**Individual Project:** Each day from June 30 through July 14 we will study and discuss the processes of action research as a class then you will break-up into your group to peer review your individual sample action research project (100 points):

1. The individual projects will be built around real world middle school scenarios.
2. There are six lessons and parts to your group project.
3. The instructor will read and give feedback daily on each part of the project.
4. The project will be ready for final rewrite on July 15 and is due on July 22.

**Group Papers:** Six papers (20 each) will be assigned related to sic of the learning outcome listed above. These papers will be include reflections from class discussion and activities as well as research and article citing to support your conclusions. These papers will address issues facing mathematics education and will be written in an action research format.

**Professional Development Leadership:** In collaboration with your research group you will lead middle school teaching in the process of mathematics education reform through action research (100 points).

**Grading:** Grades will be determined by the following percents:  
 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.

**Schedule/Rules:** The instructor has a class schedule for the quarter but it is subject to change depending on the needs of the students. If a student misses class, it is their responsibility to find out what was covered announced or assigned. In case of emergencies, it is their responsibility to contact the instructor as soon as possible. If a course deadline was missed, assessment alternatives are left up to the discretion of the instructor.

**How to succeed:** Take the responsibility for your own achievement of these performance objectives. 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.