

Math 3309
TuTh 9:00–10:20
EDUC 402

CONCEPTUAL MATHEMATICS II
Syllabus

Spring 2007

Instructor: Dr. Art Duval

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<http://www.math.utep.edu/Faculty/duval/home.html>

Office hours: **Mon, Wed, 11:30–12:30; Tue, Thu, 1:00–2:00**. Please feel free to come by my office any time during scheduled office hours. You are welcome to come at other times, but in that case you might want to make an appointment, just to make sure that I will be there then. You can make an appointment simply by talking to me before or after class, by calling me at my office or at home, or by sending e-mail.

You may also ask any questions directly via phone or e-mail. If I'm not in when you call, please leave a message on the voice-mail or answering machine with your name, number, and a good time for me to call you back. I will try to repond to your phone or e-mail message as soon as possible.

Website: <http://www.math.utep.edu/Faculty/duval/class/3309/071/home.html>

Here you will find this syllabus with relevant links, including homework and reading assignments for the whole semester, as they are announced. Other resources may become available.

Block ID: This course is being coordinated with MSED 4310 (Math Methods), one of the other two courses in the block. The content and timing for our course will be somewhat aligned with that of MSED 4310. Additionally, our course will model some of the techniques you will learn in MSED 4310. This is the first time I am teaching in this block under this particular arrangement, and so we will probably have to make adjustments in the implementation as we go along. I encourage your ongoing feedback in this area.

COURSE OBJECTIVES: The purpose of this course is for you to become involved with a wide variety of situations and contexts which give rise to geometrical concepts essential for teaching mathematics in grades 4–8. Specific topics focus on the (sometimes surprisingly deep) mathematics underlying plane and solid geometry, including the concepts of: measurement; length, area, and volume; congruent and similar figures; and transformations and symmetry. A common theme will be finding relationships between geometry and other areas of mathematics.

You will continue to develop your skill at, and comfort with, analyzing, solving, and explaining rich mathematical problems that you do not necessarily immediately know how to solve. You will be able to use software such as Geometer's Sketchpad to explore and explain geometry.

Textbook: **Mathematics for Elementary Teachers, Sybilla Beckmann, Chs. 8–11**. We will skip some sections, as announced in class. Note that there is both a textbook and Activities Manual. Bring the Activities Manual to every class; you may leave the textbook at home, if you like, though it may prove useful in class.

Class Activities: Classes will be largely structured around selected activities from the Activities Manual. I will briefly introduce each activity, including any necessary background information. Then, working in small groups with your classmates, you will engage each problem or situation in the activity, and will attempt to describe and explain the results of that engagement first to each other, and then to the rest of the class in a classwide discussion.

GRADES:

Participation (10%): Your active engagement with the material is required throughout the activity process, from introduction to class discussion. Active engagement does not require knowing all the answers all the time. Active engagement does require an honest effort, and contributing to the ongoing conversation (at the group and classwide levels) at all times.

You will not be able to get a good participation grade if you are absent too much.

Homework (15%): Individual homework, directly related to material relevant to the class activities, will be assigned regularly, and due approximately weekly. You are allowed to work together on homework (in fact, I strongly encourage you to do so), but the paper you turn in you must write yourself. Homework is due at the *beginning* of class (9:00 sharp); if you cannot make it to class, arrange to either deliver the homework to me early, or have someone else bring it to class for you.

Your lowest homework score will be dropped.

Activity Reports (40%): You will submit written reports for selected in-depth activities (approximately four throughout the semester), after we complete them (including the classwide discussion) in class.

Reports will be graded not only for answers, but also for explanations, and descriptions of the process by which you arrived at your answers (see separate handout for details).

You must write your report yourself, except for occasional projects that will require group reports (one report for the whole group). You may not consult any outside resources (including the internet) without my approval.

Quizzes (15%): There will be approximately ten short (10- to 15-minute) quizzes throughout the semester, each one announced a week in advance. Topics will be taken from recent in-class activities, and questions will generally be conceptual, and ask you to explain *why* things work. Quizzes are closed-book, closed-notes. Missed quizzes **cannot** be made up, but your two lowest quiz scores will be dropped.

Final Exam (20%): The final exam will be comprehensive over all topics we discuss in class. Questions will be both procedural and conceptual. I will distribute sample questions in advance for you to master in preparation for the final exam. The final exam will be:

Tue. 8 May, 10:00 a.m.–12:45 p.m.

Attendance policy: On-time attendance at all classes is required. Classes will begin promptly at the starting time. Though there is no direct grade penalty for absence or tardiness, it will affect your participation grade. Furthermore, assignments will likely make little sense without fully participating in the class activities.

Drop date: The deadline for student-initiated drops with a W is Friday, March 23. After this date, you can only drop with the Dean's approval, which is granted only under extenuating circumstances.

I hope everyone will complete the course successfully, but if you are having doubts about your progress, I will be happy to discuss your standing in the course to help you decide whether or not to drop. You are only allowed three enrollments in this course, so please exercise the drop option judiciously.