

## *Course Syllabus*

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### **Course Information**

<i>Course Number/Sec.</i>	ED 3340 - 501
<i>Course Title</i>	Math Concepts for Teachers
<i>Term</i>	Spring 2011
<i>Days &amp; Times</i>	Tuesday and Thursday, 7:00 – 8:15

### **Professor Contact Information**

<i>Professor</i>	Julia Haun
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<i>Office Hours</i>	Thursday, 6:00 - 6:45 or by appointment
<i>Other Information</i>	Messages and assignments can be delivered to the Teacher Development Center, FN 3.118

### **Course Description**

The primary objective of this course is to examine how to facilitate the learning of mathematics in grades Kindergarten through eight so that students are actively involved in their own learning. Teachers will be encouraged to become actively involved in visualizing mathematical concepts, solving problems, performing mental calculations, using manipulatives, and employing mathematical models to realize that mathematics is a way of thinking rather than a collection of rules. The content is designed to reflect the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics* and the Texas Essential Knowledge and Skills for Mathematics (TEKS), Grades K-8. The content and pedagogy for problem solving; whole numbers; number theory; integers; fractions and decimals; pre-algebra; probability; geometry; and measurement will be examined.

### **Student Learning Objectives/Outcomes**

1. The student will analyze problem situations, create solutions strategies, solve problems, and justify his/her thinking.
2. The student will hypothesize whether properties from one set of numbers will work for other sets of numbers and then validate his/her conjectures.
3. The student will construct concepts of number, patterns, geometry, measurement, probability, and statistics through the use of exploration and investigation.

TExES Domains and Competencies - This content of this course relates to the following domains and competencies assessed on the TExES (Texas Examination of Educator Standards) indicated.

#### Generalist EC-4

Domain II - Mathematics, Competencies 013, 014, 015

### Generalist 4-8

Domain II - Mathematics Competencies 010 - 025

### Mathematics 4-8

Domain 1 - Competencies 001-003

Domain 2 - Competencies 004-007

Domain 3 - Competencies 008-011

Domain 4 - Competencies 012-014

Domain 5 - Competencies 015-016

### Generalist EC-6

Domain 2 – Standards 1 – 5

## **Required Textbooks and Materials**

### *Required Texts*

Albert B. Bennett, Jr. And L. Ted Nelson, Mathematics for Elementary Teachers, a Conceptual Approach, 8th edition

### *Required Materials*

Calculator, basic or scientific

## **Suggested Course Materials**

### *Suggested Readings/Texts*

Albert B. Bennett, Jr. And L. Ted Nelson, Student Solutions Manual for use with Mathematics for Elementary Teachers, 8th Edition

## **Assignments & Academic Calendar**

Problems will be assigned to provide practice on concepts and skills covered as part of this course. Additional problems may be assigned to supplement the assigned problems.

Dates	Section Number	Assigned Problems
January 11	Sec. 1.1 - Introduction to Problem Solving	1.1 - 1, 3, 5, 7, 9, 17, 19
January 13	Sec. 1.2 - Patterns in Problem Solving	1.2 - 3, 5, 7, 9, 23, 27, 28, 29 Check-up
January 18	Sec. 2.1 – Sets and Venn Diagrams	2.1 - 31, 33, 35, 37, 39, 41
January 20	Sec. 2.2 – Functions, Coordinates, Graphs	2.2 - 3, 5, 7, 11, 19, 21, 23 Check-up
January 25	Sec. 3.1 – Numeration Systems	3.1 - 21, 23, 25, 27, 39, 41
January 27	Sec. 3.2 – Addition and Subtraction	3.2 - 15, 19, 21, 35 Check-up
February 1	Sec. 3.4 – Multiplication	3.3 - 9, 11, 13, 33, 43, 45

February 3	Sec. 3.4 –Division	3.4 - 1, 3, 5, 7a, 11, 19 Check-up
February 8	Sec. 4.1 – Factors and Multiples	4.1 - 3, 27
February 10	Sec. 4.2 – GCF and LCM	4.2 - 1, 3, 7, 9, 11, 13, 15, 21, 25, 27 Check-up
February 15	Test Number 1 - Chapters 1 - 3	
February 17	Sec. 5.1 - Integers	5.1 - 1, 3, 7, 9, 15, 17, 19, 21 Check-up
February 22	Sec. 5.2 - Introduction to Fractions	5.2 - 9, 11, 13, 15, 17, 19, 21, 25, 27, 39, 43, 45
February 24	Sec. 5.3 - Fraction Operations	Check-up
March 1	Sec. 5.3 Fraction Operations, continued	5.3 - 3, 5, 11, 33, 35, 37, 49, 51
March 3	Sec. 6.1 – Decimals & Rational Numbers	6.1 - 5, 7, 13, 23, 35, 37 Check-up
March 8	Sec. 6.2 - Decimal Operations	6.2 - 3, 9, 29, 43, 45
March 10	Sec. 6.3 - Ratios	Check-up
March 22	Sec. 6.3 - Percents	6.3 - 3, 5, 7, 9, 11, 13
March 24	Sec. 8.1 – Single-stage Experiments	8.1 - 1, 3, 5, 7, 9, 13, 15, 17 Check-up
March 29	Test 2 – Chapters 4-6	
March 31	Sec. 8.2 – Multistage Experiments	Check-up
April 5	Sec. 8.2 – Multistage Experiments	8.2 - 3, 5, 7, 9, 11, 25
April 7	Sec. 9.1 – Plane Figures	9.1 - 7, 9, 11, 13 Check-up
April 12	Sec. 9.2 – Polygons	
April 14	Sec. 9.3 – Space Figures	9.3 - 3, 5, 8, 9, 10 11, 27a, 28a Check-up
April 19	Sec. 10.1 – Systems of Measurement	10.1 - 5, 9, 10, 11, 13, 14, 25
April 21	Sec. 10.2 – Area and Perimeter	Check-up
April 26	Sec. 10.2 – Area and Perimeter	10.2 - 3, 9, 13, 15, 17, 21, 31
April 28	Sec. 10.3 – Volume and Surface Area	Last day of class Check-up
May 10	Test 3 – Chapters 8-10	7:00 pm

## Grading Policy

In order to receive a passing grade in this course, each student must:

1. Participate in class discussions.
2. Complete all tests.
3. Attend 22 out of 30 classes.

Homework will be assigned for each section and reviewed at the beginning of each class. Weekly checks will be given over the homework assigned and problems worked in class. The lowest two grades will be dropped and the remaining points will be converted to a percentage score.

Three examinations will be given. Each exam will reflect the content of the problems or activities that have been assigned or discussed as a part of the course and problems from the text chapter tests. Completion of the homework will be your best preparation for the exams. A comprehensive final exam will not be given. Test 3 will be administered in place of the final.

### Grading:

Weekly Checks	100 points
Test 1	100 points
Test 2	100 points
Test 3	100 points

The cumulative point total for the check ups and tests is 400 points. The following point scale will be used to determine the final grade.

Final Grade	Total Points
A+	388 - 400
A	376 - 387
A-	360 - 375
B+	348 - 359
B	336 - 347
B-	320 - 335
C+	308 - 319
C	296 - 307
C-	280 - 295
D+	268 - 279
D	256 - 267
D-	240 - 255
F	Below 239

## Course Policies

### *Make-up exams*

Missed exams will be given at the discretion of the instructor and must be completed within seven days. Only extreme situations will warrant rescheduling an exam.

### *Retests*

Students earning a grade below 70 on Tests 1 and 2 will be given the opportunity to retest. The highest grade that can be earned on a retest is a grade of 70.

### *Extra Credit*

Students will have the opportunity to earn extra credit by completing problems from the Ole Miss Math Contest website (<http://mathcontest.olemiss.edu>) In order to receive credit, students must include their work on the problem and the response from the website indicating their answer is correct. Solutions to the Middle School Math or Elementary Brain Teaser problems will be accepted. One problem per week can be submitted. Correct solutions are worth three additional points per problem.

### *Late Work*

No late work will be accepted.

### *Class Attendance*

Attendance will be taken. Students will be allowed up to four absences for any reason. Beginning with the fifth absence, twenty points will be deducted from the final point total for each absence. Students missing more than eight classes will automatically fail the course.

### *Classroom Citizenship*

All reading and homework assignments are expected to be completed before class. Cell phones are to be turned off.

## **Policies and Procedures for Students**

The University of Texas at Dallas provides a number of policies and procedures designed to provide students with a safe and supportive learning environment. Brief summaries of the policies and procedures are provided for you at <http://provost.utdallas.edu/home/index.php/syllabus-policies-and-procedures-text> and include information about technical support, field trip policies, off-campus activities, student conduct and discipline, academic integrity, copyright infringement, email use, withdrawal from class, student grievance procedures, incomplete grades, access to Disability Services, and religious holy days. You may also seek further information at these websites:

- [http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm)
- <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html>
- <http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>
- <http://www.utdallas.edu/disability/documentation/index.html>