Course Information

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

Professor Contact Information

Professor	Julia Haun
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Office Location	CBW 1.203
Office Hours	Thursday, 6:00 - 6:45 or by appointment
Other Information	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, <u>Mathematics for Elementary Teachers, a Conceptual Approach</u>, 8th edition

Required Materials
Calculator, basic or scientific

Suggested Course Materials
Suggested Readings/Texts
Albert B. Bennett, Jr. And L. Ted Nelson, <u>Student Solutions Manual for use with Mathematics for Elementary Teachers</u>, 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
August 25	Sec. 1.1 - Introduction to Problem Solving	1.1 - 1, 3, 5, 7, 9, 10, 17, 19
August 30	Sec. 1.2 - Patterns in Problem Solving	1.2 - 3, 5, 7, 9, 23, 27, 28, 29
September 1	Sec. 2.1 – Sets and Venn Diagrams	2.1 - 31, 33, 35, 37, 39, 41 Quiz
September 6	Sec. 2.2 – Functions, Coordinates, Graphs	2.2 - 3, 5, 7, 11, 19, 21, 23
September 8	Sec. 3.1 – Numeration Systems	3.1 - 21, 23, 25, 27, 39, 41 Quiz
September 13	Sec. 3.2 – Addition and Subtraction	3.2 - 15, 19, 21, 35
September 15	Sec. 3.3 – Multiplication	3.3 - 9, 11, 13, 33, 43, 45 Quiz

September 20	Sec. 3.4 –Division	3.4 - 1, 3, 5, 7a, 11, 19
September 22	Test Number 1 - Chapters 1 - 3	
September 27	Sec. 4.1 – Factors and Multiples	4.1 - 3, 27
September 29	Sec. 4.2 – GCF and LCM	4.2 - 1, 3, 7, 9, 11, 13, 15, 21, 25, 27 Quiz
October 4	Sec. 5.1 - Integers	5.1 - 1, 3, 7, 9, 15, 17, 19, 21
October 6	Sec. 5.2 - Introduction to Fractions	5.2 - 9, 11, 13, 15, 17, 19, 21, 25, 27, 39, 43, 45 Quiz
October 11	Sec. 5.3 - Fraction Operations	
October 13	Sec. 5.3 Fraction Operations, continued	5.3 - 3, 5, 11, 33, 35, 37, 49, 51 Quiz
October 18	Sec. 6.1 – Decimals & Rational Numbers	6.1 - 5, 7, 13, 23, 35, 37
October 20	Sec. 6.2 - Decimal Operations	6.2 - 3, 9, 29, 43, 45 Quiz
October 25	Sec. 6.3 - Ratios	
October 27	Sec. 6.3 - Percents	6.3 - 3, 5, 7, 9, 11, 13 Quiz
November 1	Sec. 8.1 – Single-stage Experiments	8.1 - 1, 3, 5, 7, 9, 13, 15, 17
November 3	Test 2 – Chapters 4-6	
November 8	Sec. 8.2 – Multistage Experiments	
November 10	Sec. 8.2 – Multistage Experiments	8.2 - 3, 5, 7, 9, 11, 25 Quiz
November 15	Sec. 9.1 – Plane Figures	
November 17	Sec. 9.1 – Plane Figures, continued	9.1 - 7, 9, 11, 13 Quiz
November 22	Sec. 9.3 – Space Figures	9.3 - 3, 5, 8, 9, 10 11, 27a, 28a
November 29	Sec. 10.1 – Systems of Measurement	10.1 - 5, 9, 10, 11, 13, 14, 25 Quiz
December 1	Sec. 10.2 – Area and Perimeter	10.2 - 3, 9, 13, 15, 17, 21, 31
December 6	Sec. 10.3 – Volume and Surface Area	10.3 - 3, 5, 19, 21 Last day of class Quiz
December 13	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. Periodic quizzes will be given over the homework assigned and problems worked in class. The lowest quiz grade 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:

Quizzes	100 points
Test 1	100 points
Test 2	100 points
Test 3	100 points

The cumulative point total for the quizzes 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/judicialaffairs/UTDJudicialAffairs-HOPV.html
- http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm
- http://www.utdallas.edu/disability/documentation/index.html