SMTE 1351: Fundamentals of Math II  
Fall 2011

COURSE INFORMATION
Instructor: Faydale Curtice  
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Office hours Tues and Thursday 5:30 to 6:30 or by Appointment.

COURSE DESCRIPTION:
This course is intended for students majoring in Early Childhood Education, Bilingual Education, Special Education, and BSIS EC-4. This course provides the conceptual framework for increased understanding and application of rational numbers, probability, and statistics. Communicating concepts, processes or solutions effectively, in oral and written forms, will be emphasized. The course will cover chapters 6-8 in the textbook.

PREREQUISITES:
- MATH 1314: College Algebra  
- SMTE 1350: Fundamentals of Math I

TEXTS AND SUPPLIES:
Required:  
- Mathematical Reasoning for Elementary Teachers. Long, C., DeTemple, D., Millman, R.  
- Scientific calculator with a statistics package  

TEKS (http://www.tea.state.tx.us/rules/tac/chapter111/index.html)

INSTRUCTIONAL METHODS:
The course will be based on lecture, discussion, collaborative groups, manipulatives, and technology. Students are expected to participate in group and whole class activities and discussions, and contribute their knowledge and thoughtful evaluation of the contribution of others.

EVALUATION and ASSESSMENT
Will vary by instructor, one possible example is:

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<th>Component</th>
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<tr>
<td>Homework</td>
<td>25%</td>
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<td>Class Presentations</td>
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<td>Professional development</td>
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TENTATIVE COURSE SCHEDULE

See Web Calendar

Classwork -- includes individual and group work, journals, discussions, readings, written assignments, worksheets, and quizzes.

Professional development -- choose and complete professional development activities to accumulate 100 points. Some activities may be repeated with permission of instructor. Check with the instructor to make sure your activity meets the expectations.

Family Math Night -- this class is participating in an NSF grant focused on increasing the experience of preservice teachers in working with parents. You will be creating and putting on a FAMILY MATH NIGHT at a local elementary school. This will entail time and effort outside of class. This activity is worth 20% of your grade and is nonnegotiable.

CLASS POLICIES

Cell phones, pagers and earpieces: Please remember to bring your calculator. Please turn cell phones off during class. No cell phones, pages, or earpieces will be allowed during quizzes and exams (please put them in your bag).

Written work: I expect written assignments to be typewritten or neatly printed with pages stapled together (no folding or paper clips please). I reserve the right to penalize sloppy, unorganized, un unstapled, misspelled or poor grammatical work. The Writing Center is available for help with written assignments.

Attendance: Attendance is expected and is reflected in individual and group participation. If you must be absent, I expect you to communicate with me AND YOUR GROUP before class or as soon as possible. Email and/or phone messages are encouraged.

Late Homework: In general, homework is due at the beginning of class. Under select circumstances (at instructor discretion), homework may be turned in before 8:00 PM the same day by emailing it. I reserve the right to enforce exact deadlines on particular assignments.

Exams: You are required to attend the final exam, so please make vacation plans for the holidays accordingly. The final exam will be cumulative; a link to the review sheet is on the course calendar website.

Help: The best source of help for this course is the people directly involved in this course -- your peers, the SMTE tutors, or the instructor -- during class or office hours.
STUDENT LEARNING OUTCOMES

**Rational & irrational numbers**
- Recognize that situations that have no solution in the rational number system have solutions in the real number system

**Decimals**
- Demonstrate a sense of quantity, relationship, and equivalency for fractions, decimals and percents
- Identify face/place values and expanded form for decimal numbers
- Determine when zero is a significant/insignificant digit
- Model decimals using Decimal grids (area models)
- Model binary operations on decimals using Decimal grids (area models)
- Analyze common error patterns for operations on decimals
- Explain and justify traditional algorithms for binary operations on decimals
- Convert between fraction, decimal, and percent form for rational numbers
- Appropriately round decimals to a given place value
- Order a set of decimals from smallest to greatest
- Find at least two decimals between a given pair of decimals

**Percent**
- Convert between fraction, decimal, and percent form for rational numbers
- Calculate and explain percent change (percent increase and percent decrease)
- Model percent using decimal grids
- Recognize, interpret, and evaluation appropriateness of percents less than 1% and greater 100%

**Ratio & proportion**
- Model and solve proportional problems using concrete, numeric, tabular, graphic and algebraic methods

**Probability**
- Describe and compute the outcome of simple and compound events
- Explore concepts of probability through simulations
- Create, use and interpret tree diagrams for simple, conditional and joint probabilities
- Compute odds and convert to/from probabilities
- Compute permutations and combinations for real-world scenarios
**Statistical graphs**
- Investigate and answer questions by collecting, organizing and displaying data from real-world situations
- Support arguments, make predictions and draw conclusions using summary statistics and graphs to analyze and interpret one-variable data
- Communicate the results of a statistical investigation using appropriate language
- Create and interpret graphs (pie graph, pictograph, bar graph, histogram, line plot, line graph, map chart, frequency polygon, stem & leaf plot, scatterplot) to communicate mathematical information
- Approximate the line of regression on a scatterplot and explain the trend
- Show awareness of quality graphs and possible abuses of statistical graphs

**Statistical measures**
- Describe and compute measures of centrality (mean, median, mode, midrange) and measures of dispersion (range, variance, standard deviation)

**Normal curve**
- Use the graph of the normal distribution to make inferences about a population
- Compute z-scores and percentiles for a given data set
- Compare two data sets using z-scores

**Mathematical processes**
- Recognize that a mathematical problem can be solved in a variety of ways, evaluate the appropriateness of various strategies, and select an appropriate strategy for a given problem
- Evaluate the reasonableness of a solution to a given problem
- Use physical and numerical models to represent a given problem or mathematical procedure
- Recognize that assumptions are made when solving problems and identify and evaluate those assumptions

**Mathematical perspectives**
- Understand and apply how mathematics progresses from concrete to representation to abstract generalizations

**Communication**
- Communicate mathematical ideas and concepts in age-appropriate oral, written and visual forms for a class presentation
- Use mathematical processes to reason mathematically, solve mathematical problems, make mathematical connections within and outside of mathematics, and communicate mathematically
- Reflect on personal learning, change of attitude and beliefs, and growth in understanding through mathematical journaling
- Translate mathematical statements among developmentally appropriate language, standard English, mathematical language, and symbolic mathematics
Technology
- Use appropriate technology such as calculators, computer software, and the Internet to explore, research, solve, create and compare mathematical situations and representations

Professional development
- Be familiar with the National Council of Teachers of Mathematics and the Principles and Standards for School Mathematics, the NCTM website, and NCTM journals

Students with disabilities: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office or visit them. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

The Mathematics Department complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please contact the instructor as soon as possible. Please bring your accommodation letter from TAMUCC Service for Students with Disabilities Office with you. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.). Please contact the Services for Students with Disabilities Office located in Driftwood 101 at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

Academic Honesty: University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery or plagiarism.