

WEBSTER UNIVERSITY

COURSE SYLLABUS

MATH 5330. Probability Spring, 2007

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**Office Hours: T, W, R: 3:30 - 5**

1. **Course Description:**

This course, designed for secondary school and community college math teachers, introduces probability on finite sampling spaces, with an emphasis on applications to games and gambling. Also examined are techniques of counting and paradoxes involving probability.

2. **Learning Outcomes:**

The student will be able to analyze a variety of situations involving probability, including games such as roulette and craps.

3. **The following is a rough approximation to a schedule of classes, and is intended only to provide the student with a more detailed description of ideas that will be examined.**

**CLASS 1:** Mathematical Expectation/Dice Games

**CLASS 2:** Roulette and other casino games

**CLASS 3:** Counting techniques

**CLASS 4:** Combinations and Permutations

**CLASS 5:** Combinations and Permutations (continued);

**CLASS 6:** QUIZ

**CLASS 7:** The Binomial Distribution

**CLASS 8:** Applications of the Binomial Distribution

**CLASS 9:** Poker, Blackjack

Syllabus for MTHC 5330 continued

**CLASS 10:** Other Gambling Games/Quiz Shows

**CLASS 11:** QUIZ

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**CLASS 12:** Conditional Probability, Bayes Theorem

CLASS 13: Game Theory

CLASS 14: Lotteries

CLASS 15: Paradoxes in Probability

CLASS 16: QUIZ

4. **Resources:**

**Text Used:** The Mathematics of Games and Gambling by E. Packel

**Supplemental Readings will be distributed by the instructor.**

5. **EVALUATION: based on quizzes, homework assignments, and class participation.**