

WEBSTER UNIVERSITY

COURSE SYLLABUS

MATH 5330.01
COURSE NUMBER AND SECTION

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INSTRUCTOR

PROBABILITY

TERM: Fall, 2003

1. **Course Description:**

This course, designed for secondary school math teachers, will introduce the basic concepts of probability and apply them to a variety of situations, including games and gambling.

2. **Learning Outcomes:**

The student will:

- have a deeper and broader knowledge of probability,
- be able to analyze many situations involving probabilities,
- have a collection of ideas appropriate for the secondary school classroom.

3. **Schedule :**

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

CLASS 10: Other Gambling Games/Quiz Shows

CLASS 11: QUIZ

Probability p.2

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.**

This syllabus is subject to change at the discretion of the instructor. Therefore, regular attendance is required.