

MATH 4713

Probability and Statistics for P-8 Teachers

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Office hours: 12:15-3:00 (T, Th)-Carrollton Campus
11:30-1:30 (F)-Newnan Campus

Textbook:

Billstein, R., Libeskind, S., & Lott, J. (2012). *A Problem solving approach to mathematics for elementary school teachers*, 11th Edition. Pearson Addison-Wesley: Boston, MA.

Overview of the Course: This course is designed to help prospective P-8 teachers develop mathematical understanding of elementary mathematics through collaboration and problem solving. From this course, you will have opportunities to construct concepts in probability and statistics through problem solving and to use those concepts to solve realistic mathematics problems. Although there will be some lecturing at times, most of the instructional time will be used to reconstruct mathematical ideas by communicating and sharing your mathematical ideas with your classmates. Most of the activities in this course are from the textbook listed above, especially from Chapters 9 & 10.

Goals and Objectives of the course include, but not limited to,

- Define (theoretical) probability and the law of large numbers and apply them in problem solving.
- State the properties of probability and apply them in problem solving.
- Explain the properties of probability using various representations (such as tree diagram and area model).
- Explain how the results from simulations are related to theoretical probabilities.

- Compute and differentiate between permutations and combinations and use them in problem solving.
- Differentiate among categorical, ordinal, and numerical data and organize real-life data using appropriate representational methods.
- Find and differentiate among the central tendencies (mean, median, and mode) and variations (mean absolute deviation, variance, and standard deviation).
- Explain the properties of normal curve and use them to interpret data.

Attendance and Classroom Rules:

- Students must be **punctual** and **always** attend class. There could be unforeseen emergencies that do come up. However, anyone missing classes **Three times or more** during the semester **might not** receive a credit for the course. Medical excuses are only accepted when provided with documentation.
- Students cannot enter the classroom once the class starts and should wait **SILENTLY** outside of the classroom until the door is reopened. In such cases, students will be recorded as tardy. The first two tardiness combined will be considered as one absence. After two tardiness, each tardiness will be considered as an absence.
- Students who disrupt the class for any reason will be escorted to outside of the classroom, disallowed to return for the day, and marked absent.

Use of Electronics: Calculator is the only electronic device students can use in the classroom. **Calculator as a phone accessory is NOT allowed.** In fact, in no circumstance are students allowed to use any types of electronics other than calculators. Students who do not abide by this rule will be escorted to outside of the classroom, disallowed to return for the day, and marked absent.

Grading: The final grade in the course will be based on the performance on three mid-term exams (20 points each) and a final exam (40 points), totaling 100 points.

Final Course Grade:

A	90-100
B	80-89.99
C	70-79.99
D	60-69.99
F	Below 60

Exam Schedule:

Midterm 1: Sep. 16
Midterm 2: Oct. 21
Midterm 3: Nov. 18
Final Exam: Dec. 9 (at 9-11AM)

Common Language Link: <http://www.westga.edu/UWGSyllabusPolicies/>

Tentative Schedule

Week	Topics	Materials
1, 2, & 3	Introduction Law of Large Numbers Properties of Probability Multistage Experiments & Geometric Probability	Textbook 9.1 Textbook 9.2
4, 5, & 6	Odds, Conditional Probability, & Expected value Permutation & Combination	Textbook 9.4 Textbook 9.5
7 & 8	Data Types Displaying Categorical Data	Textbook 10.1 Textbook 10.2
9, 10, & 11	Displaying Numerical Data Trendline Correlation	Textbook 10.3 Textbook 10.4
12, 13, & 14	Central Tendency & Variation Percentile & Normal Curve	Textbook 10.3 Textbook 10.4
15	Review	
16	Final Exam	