

# University of West Georgia

## Course Syllabus

MATH 4713: Probability and Statistics for P-8 Teachers

Fall 2016

**Instructor:** Dr. Veena Paliwal

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**Office:** 318 Boyd Building

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**Class Location:** 305 Boyd Building

**Class Meeting:** TR 11:00 a.m.—12:15 p.m .

**Office Hours:** TR 9:00 a.m.-9:30 p.m., 1:45 p.m.-3:30 p.m.

W 9:30 a.m.-11:30 a.m.(by appointment)

### Catalog Description:

This course has a special emphasis for teachers of grades P-8. It broadens understanding of the fundamental concepts of probability and statistics with a particular attention to specific methods and materials of instruction.

Instructor's emphasis: This research based course provides the conceptual framework for increased understanding and application of probability and statistics. Communicating concepts, processes or solutions effectively, in oral or written form, will be emphasized.

### Required Books:

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

### Student Learning Outcomes:

After completion, the teacher candidates should be able to do the following:

#### Probability

- Describe and compute the outcome of a simple and compound events
- Explore concepts of probability through simulations
- Create, use and interpret tree diagrams of simple, conditional, and joint probabilities
- Compute odds convert to/from probabilities
- Compute permutations and combinations for real world scenarios

#### Statistical Graphs

- Investigate and answer the 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 to communicate mathematical information
- Approximate the line of regression on a scatter plot and explain the trend

#### Statistical measures

- Describe and compute measures of centrality (mean, median, mode) 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

### **Evaluations and Grading Procedures:**

**Homework and quizzes (20%):** There will be homework assignments and in-class quizzes. Group homework assignments will be given at the end of a class and will be due at the next meeting. **NO LATE HOMEWORK WILL BE ACCEPTED.** Quizzes will be pop-up quizzes given in the last 15 minutes of the class and will be announced on a particular day itself. It is therefore important to attend the class every day. Most of the times the quizzes will be based on the material covered in the class that day.

**Micro-teaching (10%):** I really want each student to come and share their ideas about mathematics teaching and learning with rest of the class. Therefore, I want each group to present a micro-teaching lesson (15-20 minutes) in the last week of the class. Your grade will be based on my evaluation and other groups' evaluation of your groups' presentation.

**Exams (45%):** There will be 3 one-hour exams, and each exam will be announced at least one (1) week prior to the exam date. Unexcused absences from an exam will result in a grade of zero (0) for that exam.

**Final Exam (25% of the grade):** A **comprehensive** final exam will be given during Finals Week.

Letter grades will be assigned by the following scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	E

**Attendance Policy:** You will be allowed ONE unexcused absence. You will be allowed TWO additional absences with a documented excuse that was beyond your control (doctor said so, car accident, etc.) Poor planning and poor judgment, which result in missing class, do not count as excused. For every absence beyond those mentioned above, your overall course grade will be lowered by 5%. Students are expected to attend class and complete all work when assigned. Students are responsible for the topics covered and assignments due whether present or not. **“I was not here” is NOT a valid excuse. You will be responsible for signing the attendance sheet during each class period.**

**Make-up and extra credit policy:** There will be NO make-ups for HW assignments, quizzes, or exams will be allowed. **Please note that NO extra credit will be given!** Points can be earned only as stated above.

**Class Rules:** You are to turn off your cellular phone during the class. You are not allowed to use your phone as a calculator. Please respect your instructor and other students in the class. No talking or any distracting behavior. If you fall asleep in class, you will be asked to leave.

**University policies:** Please refer to university's policy at [http:// tinyurl.com/UWGSyllabusPolicies](http://tinyurl.com/UWGSyllabusPolicies)

**Meeting with instructor and tutoring center:** Meeting instructor can be beneficial and is encouraged. Meeting should occur during the instructor's office hours, whenever possible. If these hours conflict with a student's schedule, then appointments should be made. Please use the tutoring center at Boyd 205 You can just walk in and get help.

**This is a tentative schedule of assignments and topics to be covered in class sessions. Changes will be made as needed. Once we finish a section, we will immediately move along to the next section. It is recommended that you read over text sections BEFORE we cover them in class. After we cover topics, you should complete assignments and do any extra practice or get help as needed. Don't wait until its too late (like after doing bad on a test).**

Week 1: Section 9-1 –Probabilities

Week 2: Section 9-2 –Multistage experiments

Week 3: Section 9-3 –Simulations

Week 4: Review and exam 1

Week 5: Section 9-4 –Conditional probabilities, expected values

Week 6: Section 9-5 –Permutations and combinations

Week 7: Section 10-1–Collecting data

Week 8: Review and exam 2

Week 9: Section 10-2 –Displaying data and measures

Week 10: Section 10-3 –Displaying data and measures

Week 11: Section 10-4 –Central tendency measures

Week 12: Section 10-5 –Abuses of statistics

Week 13: Review and exam 3

Week 14: Micro-teaching

Week 15: Review for the final exam