Course Syllabus

Math 4713-01: Probability and Statistics for P-8 Teachers

Summer Session II, 2017

University of West Georgia

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Office Hours: M 11 – 11:40 a.m., 2 – 3 p.m., T/TH 10 – 10:40 a.m., 5 – 5:30 p.m.

Class Meetings: *T, Th* 2 – 4:30: p.m., Boyd #307
These will consist of a combination of lectures, question-and-answer sessions, hands-on experiments, and general discussions. All reading will be assigned in advance of the meeting thereon. (See attached schedule.)

Text/Resources: Billstein, R., Libeskind, S., & Lott, J. (2015). *A Problem Solving Approach to Mathematics for Elementary School Teachers*, 12th Edition, Chs. 9 – 10; Pearson, Boston, MA. ISBN#: 0-321-98729-2

Stats calculator (**TI-30XII, TI-83/84,** etc.)

Prerequisites: Admission to Teacher Education program and Math 2008 with a minimum grade of C or Math 1634 or Math 2703

Topics: *Probability* (Chapter 9; 3½ weeks): Empirical probability, sample spaces, theoretical probability, laws of chance, mutually exclusive events, complementary events, conditional probability, independent events, odds, random digits tables, random variables, probability distributions, expected value, permutations and combinations, binomial probabilities, etc.
Statistics (Chapter 10; 3½ weeks): Collection and measurement of data, statistical bias, random sampling, observational vs. experimental studies, categorical vs. numerical variables, discrete vs. continuous variables, data plots, frequency distributions, pie charts, bar charts, grouped data, histograms, skew vs. normal distributions, double-bar graphs, line graphs, two-way tables, scatter plots, correlation, measures of central tendency (mode, median, mean), outliers, measures of variation (range, IQR, standard deviation), box plots, Chebyshev's rule and the Empirical rule, measures of relative standing (percentiles, standard scores)

General Objectives: Besides developing and deepening your understanding of the topics mentioned above, there are some general skills you should improve upon along the way in order to be able to carry what you learn in this course into future courses of study and teaching. These include:

- use of appropriate mathematical terminology and notation
- construction and use of tables and graphs
- appreciation of the role played by randomness in scientific experiments
- distinction between correlation and dependency
- detection of fallacies in statistical reporting and reasoning
- recognition of ethical problems in the collection and use of data
- translation of practical problems into statistical models and vice versa

Evaluation Procedures: Your understanding of the material and your progress toward the aforementioned objectives will be evaluated on the basis of your *contributions to class meetings, solutions to graded homework problems, and performances on two written exams.* (See attached schedule.) Practice problems from the text or from class will be assigned regularly but not collected or graded. These are for self-evaluation and class discussion. Be prepared to discuss them as soon as possible after they are assigned. Some of them may appear as exam problems.

Evaluation Criteria: Grades on all work will be based upon

- accuracy of information (including calculations and use of mathematical symbols and terminology)
- depth and breadth of solutions (when applicable)
- logic and clarity of arguments (when applicable)
- neatness and clarity of presentation
- correctness of grammar and spelling
- thoroughness and timeliness of work
- intellectual honesty and creativity
- achievement of personal potential
- level of difficulty of the material

Grades: My scale for converting numerical grades (i.e., percentage points) to letter grades will be as follows:

89-100 A, *77-88* B, *65-76* C, *50-64* D, *below 50* F

Your final grade will be based on *problem solutions* (40%), *exam scores* (50%), and *participation in and contributions to class meetings (10%).* However, you may also earn up to *two* points of 'extra credit' by maintaining a *superior record of attendance*, i.e., *one point per period of near- zero absences from class meetings between successive exams.* [Note: An absence here means a class day in which you are not present (in body or mind!) for the majority of the class meeting, *regardless of the reason*.]

Important Reminders:

- Attendance is important! However, should you find for some reason that you must miss a class meeting, remember that you are still responsible for any and all material you may have missed during your absence.
- *Exams* must be taken at the prescribed times (see attached schedule), except by permission from the instructor. Such permission will be given only under the direst of circumstances (serious illness, e.g.) and *only if your request is granted before the exam is over. Otherwise you will receive a score of zero for that exam.*
- If you find yourself falling behind in the course, do not delay in seeking out assistance and/or advice from someone (the Instructor, a tutor, etc.) who is competent in the subject area and who has your best interests at heart! **The Math Tutoring Center is in Boyd #205 and is open daily at the posted times.**
- **All electronic correspondence between student and instructor about matters pertaining to this course should be by way of your UWG e-mail account. In particular, all documents for this course may be downloaded from the UWG website by opening the "files" folder for this course in CourseDen.**
- I assume you will abide by the *UWG Honor Code*. *This means among other things that you will not submit any work for a grade that is not your own work.* Violators of the code will receive no credit for the work in question and, in more serious cases, may be expelled from the course with a grade of 'F'.
- For complete information on your rights and responsibilities in this or any other course at UWG go to http://tinyurl.com/UWGSyllabusPolicies.