GRAYS HARBOR COLLEGE
SYLLABUS
BA 260/MATH 260
INTRODUCTION TO STATISTICS
5 CREDITS

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I. COURSE DESCRIPTION

Prerequisites: A grade of C- or better in MATH 111 or MATH 121 or instructor permission.

This course provides an introduction to probability theory and statistical analysis with applications to a variety of fields. Topics covered include describing data graphically and numerically, correlation and linear regression, probability, the binomial and normal distributions, sampling distributions, confidence intervals and hypothesis testing. Math 260 and BA 260 are the same course so students may not receive credit for both. This course satisfies the quantitative skills requirement or the science distribution area F requirement or acts as a specified elective for the AA degree. 5 lecture hours

II. AIMS AND OBJECTIVES (with regard to learning outcomes)

1. *Competency in the Discipline*

This course is intended to provide exposure to basic statistical concepts and practice in statistical applications. Testing will focus on this material and in this venue the successful student should demonstrate the ability to set up and solve some basic statistical problems. The successful student will also have demonstrated sufficient progress to move onto courses which require or suggest Math 260/BA260 as a prerequisite.

2. *Literacy & Critical Thinking*

To solve problems posed in class and in homework problems students will practice certain quantifying and analytical skills which include (but are not necessarily limited to): (i) analyzing statistical techniques for collecting data (ii) summarizing/organizing data into tables and graphs (iii) organizing data by calculating descriptive measures of it---for example, those involving shape, central tendency and variation (iv) using probability to make inferences about the data (v) estimating population parameters through confidence intervals. (vi) testing claims about population parameters through hypothesis testing (vii) noting relationships in the data and making future predictions through the use of correlation and regression.

To solve problems, students will practice problem solving techniques which include: (i) careful reading of text material, mathematical notation and data in an attempt to understand the problem (ii) formulating solution techniques with a particular focus on using the methods and models discussed in class. Decision making is a necessary component of this step since students must choose the best solution technique for a particular problem. (iii) carrying out the problem solving technique devised

in (ii) to find a solution. (iv) taking a solution and analyzing it with an eye as to whether the solution makes sense in the context of the original problem.

3. *Social and Personal Responsibility*
Each student is expected to come to class and behave in a manner as outlined in section IX of this syllabus.

4. *Using Resources*
Each student will be given the opportunity to practice the use of a scientific calculator in order to solve problems. The successful student will have to demonstrate a degree of competency in its use in order to solve problems on tests and quizzes.

III. TEXTBOOK
Elementary Statistics, 8th edition, Mario F. Triola, Addison-Wesley publishers, 2001

IV. TECHNIQUE OF INSTRUCTION
Daily lectures/discussions of new material and daily homework assignments. On occasion you may be asked to solve problems in class either individually or in a group setting.

V. ORGANIZATION OF COURSE CONTENT
A. Introduction To Statistics (Sections 1.1-1.4)
B. Describing, Exploring and Comparing Data (Chapter 2)
C. Probability (Sections 3.1-3.4)
D. Probability Distributions (Sections 4.1 - 4.4)
E. Normal Probability Distributions (Sections 5.1 - 5.5)
F. Estimates and Sample Sizes (Sections 6.1 - 6.5)
G. Hypothesis Testing (Chapter 7)
H. Correlation and Regression (Sections 9.1 - 9.3)
I. Statistical Process Control (Chapter 12 time permitting)

VI. METHODS OF EVALUATION
***Assigned Homework** (Roughly 10-15% of the total grade)
-organized sequentially in a folder or notebook
-label the top of each page of your homework with the section number; please don't make me guess what and where your assignments are
-notebooks will be collected before each unit exam begins

***Four Tests** (roughly 50 - 65% of the total grade)
-I will announce the exact date of a test about a week in advance.
-in general I don't give make-ups for missed tests. I will, however, drop the lowest test score of the 4 exams.

***Comprehensive Final** (roughly 25 - 35 % of the total grade)

***Other assignments** that I feel are necessary given time and opportunity (possible examples: writing assignments; group activities; periodic quizzes; a collected homework assignment - no more than 10 - 15% of the total grade)

VII. GRADING

(In percent) Tentative scale

A: 92 - 100 A-: 90 - 91.9 B+: 88 - 89.9 B: 82 - 87.9 B-: 80 - 81.9 C+:77 - 79.9
C: 70 - 76.9 C-: 65 - 69.9 D+: 60 - 64.9 D: 50 -59.5 F: Below 50

Note also that depending on overall class performance and difficulty of the evaluations some of these category levels might drop. They will not go up. For example, if you have earned a 90% you most certainly will be assigned a grade of A or A-. If you have earned an 89% you might also be assigned a grade of A- depending on the circumstances.

VIII. CALCULATORS

It is necessary to have access to a scientific calculator.

IX. ATTENDANCE AND CLASS BEHAVIOR

Attendance is optional (In other words I will not take daily roll or grade you on it---except that I may note it and it may influence me in borderline cases.) but strongly recommended. Class is the place where questions may be asked and answered by not only the instructor but also other students. Keep in mind that you are expected to come to class each day prepared to participate, to share your ideas and to learn from both peers and instructor. You are always responsible for all information covered and materials distributed in class.

Students are expected to be on time. If circumstances dictate that you must come to class late, please enter the classroom quietly and sit in the back. Once class has started, students should not leave and reenter the classroom without a legitimate reason. This is disruptive behavior to both students and instructor. If you need to leave early, please let me know in advance and again sit in the back of the classroom and leave quietly. Other disruptive activities include sharpening pencils while a lecture or discussion is in session and private conversations among students not involving math. Please don't do these things!

NOTE: The content of this syllabus may be changed at any time according to instructor discretion.