MA 107 A   **Elementary Statistics**
Spring 2011
Class meetings: Monday, Wednesday, and Friday, 10:20 to 11:30 a.m., PPHAC 232
Instructor: Kay B. Somers
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Office Hours: Monday, Wednesday, and Friday, 11:45 a.m. to 12:45 p.m.; Thursday, 3:00 to
4:00 p.m., and by appointment or whenever you find me in my office.

Required text
Roxy Peck, Chris Olsen, and Jay Devore (2007), *Introduction to Statistics and Data Analysis*,
Third Edition, Duxbury, Pacific Grove, CA.

Course Goals
After completing this course, successful students will:

- have an understanding of how data is collected and gain experience collecting and
  finding data sets.

- be able to effectively summarize data using graphical displays, and interpret data and
  draw conclusions based on graphical displays of data.

- understand that the purpose of collecting and analyzing data is to answer questions and
  make informed decisions.

- understand the role of probability and uncertainty in data analysis.

- be able to explain clearly, both orally and in writing, how the results of statistical
  analyses relate to the context from which they were obtained.

- learn to think critically about data and the results of data analyses that occur in their
  everyday lives.

- be able to use technology appropriately as a tool for quantitative analysis.

Course topics
An understanding of how we collect, present, analyze and interpret data is a critical part of
everyday life and of many very important decisions that affect all of us. This course will explore
the procedures used in the collection, presentation, analysis, and interpretation of data, how to
carry out those procedures well and how to recognize when they are done poorly. The topics
covered include graphical representations of data, measures of central location and variation,
normal distributions, regression and correlation, sampling and design of experiments,
probability, random variables, discrete probability distributions, parameter estimation,

confidence intervals, and inference and tests of hypothesis. These topics are found in Chapters 1 through 10 of the class text. (Note that some sections in some of these chapters will not be covered.)

Attendance

Attendance in class is required. If you are not in class, you cannot show mastery of the day's work during that class. In addition, this course is about participating in the discovery of mathematics, not just learning facts and algorithms. Many of the statistical concepts we are learning will be demonstrated through class activities done in small groups during class. In order to participate, you must be in class. Thus, *attendance is required*. Each absence will adversely affect your class participation grade. Please talk to me in advance if you must miss class for some reason beyond your control. Students are responsible for all work covered in class and all assignments, even if you must be absent from class.

Daily homework: Preparing for each class

Daily reading and problem assignments from the text will be given; you are expected to come to class prepared to explain problem solutions and to ask questions on anything that is unclear. As an added incentive to arrive to class on time and to work seriously on the daily problem assignments, at the beginning of most classes, we will randomly choose one homework problem for you to re-write and hand-in to be evaluated. You will be asked to re-write the solution to the problem using only your notes and already-written solutions, without referring to your text. These problems will be graded 0/2, 1/2, or 2/2. A 2/2 can be earned by successfully solving the problem, or by showing work so far, and asking thoughtful questions that show you worked seriously on the problem. Your two lowest daily problem grades will be dropped. You are encouraged to work with your classmates on the daily problems. Giving and receiving explanations can be very helpful when working on problems and when preparing for exams.

There will be additional graded hand-in homework assignments and one project. This homework will involve a variety of types of activities. You will be told in advance when these assignments will be collected and graded. Students are encouraged to study and work together on daily assignments but graded assignments need to be **your individual** work unless it is specifically stated in writing that the assignment is a group assignment. Late homework will be accepted only if you are absent due to illness or emergency. The Academic Honesty Policy guidelines for Mathematics courses, which are attached, are to be followed on all assignments.

Classroom etiquette

You need to come to class prepared. This means that you have carefully read the assigned material, you have worked (seriously) on the assigned problems and you have your notebook, your textbook, and your calculator with you. You are ready to ask and answer questions in class and to work with your classmates on any in-class group activities. This classroom needs to be a place where everyone feels comfortable asking and answering questions; you are expected to treat everyone in class with respect. You need to turn off your cell phone and any other electronic devices (except calculators, of course) and put them away during class. Finally, you

are expected to be on time for class, to stay until class is over and not leave the class unless there is an emergency. This will help you, your classmates, and you professor focus on what we all came to do. (It is very disruptive to everyone, but especially to your instructor, to have people walking in and out of the classroom.)

Calculators and Technology
You will need to have a calculator to use for this class, and will be expected to bring it with you to each class. (You may also use it on all quizzes and tests.) I **strongly** recommend you obtain a TI-83 graphics calculator to use. I will provide instructions for using the TI-83 and will use it for classroom demonstrations. We will also have the option to use the computer program *Excel* for some activities.

Grading
In addition to daily homework, hand-in homework, and one project, there will be regular weekly quizzes, three hour exams, and a cumulative final exam. Your course grade will be computed as follows:

Quizzes, daily questions, graded homework	25%
Class participation	6%
Project	10%
Three hour exams	13% each, 39% total
Cumulative final exam	20%

The project will be due during the last half of March, with the exact date to be announced. The three hour exams are tentatively scheduled for the dates given below. You are responsible for knowing about the project due date and any changes to the test dates made during class.

Friday, February 11
Friday, March 18
Friday, April 15

Academic Honesty
For graded homework assignments and projects, you may use your class notes and any books or library sources, except a solutions manual. You may not use the help, orally or in written form, of any individual other than your instructor unless it is specifically a group assignment and you may not copy someone else's work or let someone else copy your work. If an assignment is completed by a group of two or more people, each person who contributed to the work must put his or her name on the work. All in-class quizzes and tests are to be done by you individually unless specifically stated by your instructor for a particular event.

The College academic honesty policy appears in your Student Handbook; you are expected to be familiar with it. The *Academic Honesty Policy Guidelines* specific to mathematics classes are reiterated on the last page of this syllabus. They apply to work done outside of class as well as to

in-class quizzes and tests. Please read them carefully. If you are unsure about the propriety of a particular procedure or approach, please consult with your instructor before continuing with the assignment.

Extra help
You are strongly encouraged to ask questions in class and to see Dr. Somers or the mathematics tutors for help outside of class as much as necessary. You will be informed soon about tutor center hours, which will be held in PPHAC 238.

General recommendations for success

- Be on time for class and stay focused on the work of the class during the entire period. (Temporarily forget about text messages, e-mail, other coursework, and so on.)
- Keep a reliable record of all assignments, if they are to be collected or not, and when they are due.
- Prepare for each class by completing the reading assignments. When you read, read with pencil or pen and paper in front of you, and take notes, write out definitions in your own words, create your own examples, work out the examples in the text, and write down your questions.
- Keep an organized three-ring binder that contains all completed classroom activities, exams, and other course material, including your notes taken during class and your notes on the readings.
- Begin to work on the homework problems, writing assignments, and papers as soon as they are assigned.
- Find one, two, or more students from this class with whom to discuss the course material outside of class.
- Come see me for help whenever you have unanswered questions.

Accommodations
Any student who wishes to request accommodations under the Americans with Disabilities Act (ADA) for this course should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510.) Accomodations cannot be provided until authorization is received from the Office of Learning Services.

Possibility of changes
This syllabus is a guideline for the course. It may be necessary to make changes during the semester. I will announce any changes in class.

ACADEMIC HONESTY POLICY GUIDELINES

MATHEMATICS COURSES

The Department of Mathematics and Computer Science supports and is governed by the *Academic Honesty Policy of Moravian College* as stated in the Moravian College Student Handbook. The following statements will help clarify the policies of members of the Mathematics faculty.

In all homework assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you <u>must</u> acknowledge the source. For graded homework assignments, you may not use a solution manual or the help, orally or in written form, of an individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources you will be violating the *Academic Honesty Policy of Moravian College* .   For homework which is not to be graded, if you choose, you may work with your fellow students. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and ungraded.

All in-class or take-home tests and quizzes are to be completed by you alone without the aid of books, study sheets, or formula sheets unless specifically allowed by your instructor for a particular test.