College of Science and Health
Elementary Statistics
Department of Mathematics
Dr. Eliana Antoniou
Course Syllabus

1. <u>Title of Course, Course Number and Credits:</u>
   Elementary Statistics - Math 1300   3 credits
   <u>Instructor:</u>
   Dr. Eliana S. Antoniou
   <u>Office:</u>
   3049 Science Hall East
   <u>Phone No:</u>
   (973) 720-3715
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2. <u>Description of Course:</u>
   This course studies the development of statistical concepts with applications to various disciplines. Topics include descriptive and inferential statistical techniques. The latter are explained in terms of concepts from probability theory such as normal distribution, t-distribution, sampling theory, estimation, confidence intervals, hypothesis testing, t-test, Chi square test, analysis of variance and regression and correlation. The software package SPSS is used to perform statistical analysis.

3. <u>Course Prerequisites:</u>
   None

4. <u>Course Objectives:</u>
   The objective is to acquaint the non-science student with the basic principles of statistics. Great effort will be made on emphasizing the role of statistics in the disciplines of social sciences and health sciences. Discussions will include the use of statistics in research and the utilization of SPSS output to analyze data and to solve problems.

5. <u>Student Learning Outcomes.</u> Students will be able to :
   1. Effectively express themselves in statistical terms either in written or oral form.
   2. Demonstrate ability to think critically and effectively by utilizing statistical methods or SPSS to perform data analysis.
   3. Locate and use information from SPSS output to draw statistical conclusion.
   4. Demonstrate ability to integrate knowledge and ideas in a coherent and meaningful manner; and
   5. After successful completion of the course, students should be able to:
      - Understand basic statistical methods;
      - Apply statistical methods to application problems: set up the problem statistically, choose a suitable method;
      - Perform statistical analysis, such as estimation, hypothesis testing, regression analysis and draw conclusion; and
      - Effectively utilize SPSS to perform data analysis and draw conclusion from SPSS output.

6   Topical Outline of the Course Content:

    I. Introduction:
- Graphical Methods
- SPSS

  II. Numerical Methods:
- Measures of central tendency
- Measures of variability
- Measure of position

  III. Relationships between variables:
    Scatter plots, correlation and introduction to linear regression

  IV. Introduction to Normal distribution

   V. Sampling distribution, central limit theorem

  VI. Inferences about mean (large sample and small sample)
- Confidence interval
- Testing hypotheses about mean

  VII. Inferences about Means: (large samples and small samples)

- Confidence interval

- Difference between two means

- Paired samples and blocks

  VIII. Inference about proportion(s) (one sample and two samples)
- Confidence interval
- Hypothesis Testing

  IX. Chi-Square test

   X. Analysis of Variances and Regression

7.   Required Text:
Ron Larson and Betsy Farber, Elementary Statistics, Picturing the World, 5th Edition, Prentice Hall

8.   Homework and Tests :
Homework: It will be assigned for every chapter on MyStatLab.
Tests: There will be two tests during the semester all posted on MyStatLab.

9.   Grades will be based on homework, quizzes, tests and a final exam using the following weights:
a. Two Tests (15 % each)
b. Homework on MyStatLab (15 %)
c. SPSS homework will be posted on Bb AND IT NEEDS TO BE COMPLETED ON SPSS software, not by hand (10%)
d. Quizzes on MyStatLab (10%)
e. Study Plan (5%)
f. Cumulative Final Examination (30 %)

Your total score will be assigned a letter based on the following chart:

Grade Distribution:

A : 95-100	B+: 85-89	C+: 70-74	D+: 55-59	F: 0-50
A-: 90-94	B: 80-84	C: 65-69	D: 51-54	
	B-: 75-79	C-: 60-64		

10. Make-up Exams:
THERE WILL BE ABSOLUTELY NO MAKEUP EXAMS
In rare unfortunate situations such as illness, death in the family etc. you are expected to notify me of your inability to take the exam, immediately. In all cases, you must present proof for missing the exam. Acceptable forms of proof are doctor's certificate, police report, funeral home announcements etc., and these should clearly state the date and time. Under such circumstances, your score for the Final Exam might be counted towards the Exam(s) you missed.

SUPPLIES NEEDED FOR THE COURSE:

Purchase the book from the bookstore or buy the e-book from MyStatLab:

If you have technical problems registering, please call MyStatLab at at 800-677-6337 M-F 12pm-8pm EST OR at http://www.mystatlab.com/contactus_stu.html.
Keep this number handy in case you have any problems with MyStatLab and require technical support. Please do not contact me for technical issues related to MyStatLab.

In addition, please visit the Announcements page on Bb every time you log on since I will be posting current and important information relevant to the course. You will be also notified via the University's email that an announcement has been posted. Any changes in assignments, deadlines, etc., will also be posted on the Announcement page.

To take this course, it is a requirement that you are knowledgeable with:
- Internet browsing

- E-mail (sending and receiving attachments)

- Inserting files (pictures, tables, etc,) into a document;

And that you have access to
- A computer with the minimum hardware specifications described in the following link: http://www.wpunj.edu/cedl/dlfag.html#9)

- Wpunj e-mail account and that this will be the only e-mail account that you will use during the course

- Microsoft Word (or any compatible word processor).

Therefore, there will be no orientation for this course and we will not meet in person at any time during the course. If you are not familiar with Blackboard, please see the tab within Blackboard entitled:
 Bb Support: Students

The same information is available on the Bb Home before you log on:
http://bb.wpunj.edu
If you cannot find help in the documentation the best way to obtain support is to contact the Bb Support center at this address:
https://liberty.wpunj.edu/bb/support-center/
In addition, student documentation can be found at: http://www.wpunj.edu/bb/students/

I will NOT accept:
- Late homework

- Technical excuses, such as "my computer froze", "I could not access the web site", "I did not receive the email". You are responsible for submitting your work ON TIME.

Class will communicate in two ways:
Discussion Board on Bb: Remember that any message post to the board will be read by the entire group. If you are replying to an individual, use their personal email instead. Remember that using the reply option to answer a message will send your message to everyone in the class.
Personal E-mail: It should be used when you send your questions and/or files to me or if you want to communicate privately with your classmates. You MUST use your William Paterson university e-mail address unless you are a visiting student and you do not have one.
You must place "MATH1300-Online" in the subject line. If you don't, I will not read your email.

NOTE ON SPSS Statistical Software version 19:
 The SPSS statistical software is required for the completion of this course. I will be assigned as one of your homework assignments on MyStatLab, named "SPSS", and it needs to be completed using the SPSS software. It is your responsibility to familiarize yourselves with this software and learn how to use it. I have already posted SPSS tutorial videos, as well as, a study card on MyStatLab. It is available in the computer labs on campus and it is free for you to use. In case you do not wish (or cannot come to campus) you can purchase the software. Please use the current version they have available to complete the homework that requires SPSS.

11. **Disclaimer:**
    The requirements and policies may be modified as circumstances dictate. Such changes will be provided to you in writing