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# MAT 1372-6554 Statistics with Probability (3 cr, 4 hr) Spring 2013

## **Course Meetings:** T, Th 4:00 - 5:40 AM (N922) **Email:** ehalleck@citytech.cuny.edu

## **Instructor:** Ezra Halleck **Phone:** (718) 260-5931

## **Office Hours:** W1-2, Th 3-3:50 and by appt **Office:** N726

**Texts:**

1. *Introductory Statistics* 3e by Sheldon Ross
2. *Statistics with Microsoft Excel* 5e by Beverly J. Dretzke

**Computer software:** Course will make considerable use of MS Excel; please bring a USB memory stick to class.

**Course Description:** Topics include sample spaces and probabilities, discrete probability distributions (Binomial, Poisson), expectation and variance, continuous probability distributions (Normal), confidence intervals, and correlation and regression.

**Co/Prerequisite:** MAT1375

**Student Learning Outcomes:** At the end of the semester, students will be able to

1. collect, organize and graph raw data.
2. compute statistical parameters (mean, median, mode, average deviation, variance, and standard deviation).
3. create grouped frequencies distributions, probability distributions, histograms as well as identify bell-shaped distributions (Normal).
4. assign probabilities to events using counting methods, conditional probability and discrete distributions.
5. find the least squares regression line and estimate the correlation
6. create a contingency table
7. use spreadsheet software to assist in creating distributions and calculating probabilities.

**Attendance:** You may miss no more than 3 classes. Lateness between 0 and 40 minutes counts as 1/2 absence. In addition, you will receive no credit for that day’s homework. Once in class, stay for the full period; if you *leave early* without making prior arrangements, *you will be marked as absent*. Students who have been excessively absent and failed the course at the end of the semester will receive a WU grade if they have attended the course at least once. This includes students who stop attending without officially withdrawing from the course.

**Cell phones:** Please turn *off* and place out of sight. If the instructor sees or hears a phone, he may ask that you hand it to him for the duration of class.

**Academic honesty:** You are encouraged to work in groups on homework, but be able to explain *anything* you turn in. During an exam, showing someone else your work is cheating; you will be treated in the same way as the person who copies. It is your responsibility to cover your work. For the take home exams, you must only ask for help from the learning centers or the instructor. No conferring with classmates, friends, relatives or online homework services is allowed. When asking for help in the learning center, please show the top of the exam, which will explain that tutors should not provide the answers but can only provide hints on how to proceed to the next step if a student is stuck.

**Set enough time aside each week:** You are expected to spend 6 hours outside the classroom each week reading the text, working on projects, doing homework and preparing for exams.

***Time* problems?** Here is a **damage control priority list:**

1. *Read the section prior to the class in which it is covered.* This reading will facilitate your understanding and participation in class.
2. *Attempt at least some of the homework problems immediately after class,* so that you know how much of the class you understood.
3. *Take advantage of office hours:* If you are unable to attend the scheduled hours, make an appointment.
4. *Make use of the Atrium & Voorhees Learning Centers (approximately 9AM-8PM, M-Th, shorter hours on F & Sat):* While some of the tutors are advanced undergraduate students, many are adjunct faculty.

**Grade components**

**Online participation (5%):** You are expected to become members of the openlab, to join the course (1 point) and to contribute 2 significant and interesting postings by the midterm and 2 additional ones by the final exam. You may earn only 1 point in any given week.

**Homework (15%):** A combination of webwork assignments (for probability) and spreadsheet submissions (all other sections). The homework for each day will be waited approximately equally, say 2 points, so a homework that covers 3 days of material will be out of 6 points.

**Final Project (15%) and Presentation (5%):**

* The instructor will provide a list of suggested topics/sources, but each group of 2 or 3 students is encouraged to find its own topic. Use the daily group discussion time to find members you can work with.
* To ensure an interesting selection of oral presentations, the instructor must personally approve your topics.
* **Project** will focus on data with 2 numerical components, e.g., weight vs. height or hours studied vs. exam score and plotting the data as points on a Cartesian coordinate system to get a **scatter plot**. A line which best fits the data is found and added to the plot. How well the data is clustered around the line is **correlation**.
* Report (MS Word) is **individual,** spreadsheet (Excel) and presentation (PowerPoint) are **group.**

**Writing Project (20% total)** will be scaffolded and done over approximately one month**.** Components include

* **(4%)** Response to 2 newspaper articles about how statistics is used as a tool (BB).
* **(3%)** Report on research: must include at least 2 references, one of which is peer-reviewed (BB).
* **(3%)** Draft done as a post on openlab.
* **(3%)** Peer review of someone else’s draft (you will pair up) as a comment to the post.
* **(7%)** Final draft which incorporates some of the suggestions of the peer review.

**Exam I (10%, take home) and II (15%, in class):** A sample exam will be posted on the openlab one week prior to exam II.

**Quizzes (15%):** At the beginning of each class, a quiz will be given based on the homework and the material presented in the previous class.

**Grade scale:**

93 – 100 A 77 – 79.9 C+

90 – 92.9 A- 70 – 76.9 C

87 – 89.9 B+ 60 – 69.9 D

83 – 86.9 B 0 – 59.9 F

80 – 82.9