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| New York City College of Technology | Mathematics Department Office: N711  |
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# MAT 1372-D557/8 Statistics with Probability (3 cr, 4 hr) Fall 2015

## **Course Meetings:**

## **[D557]** T, Th 2:15 - 3:55 PM (N922) **[D558]** M,W 4:00 – 5:40 PM (N922)

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

## **Office Hours (in N726):** MW 2:00-3:00 and by apt **Email:** ehalleck@citytech.cuny.edu

**Texts:**

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

**Computer software:** We will make considerable use of MS Excel and R; please bring a USB memory stick to class or save your work on the cloud (e.g. Dropbox).

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

**Co/Prerequisite:** MAT1375

**Student Learning Outcomes Specific to the Course:** 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 and histograms as well as identify distribution properties, including uniform, bell-shaped, exponential, multimodal and/or skewed.
4. Assign probabilities to events using counting methods, conditional probability and discrete distributions.
5. Calculate and analyze the correlation between 2 variables and find and analyze the least squares regression line.
6. Given raw data, create a contingency table and use the chi-squared test to analyze for independence.
7. Use spreadsheet and other software to assist all aspects of the course, including graphing distributions, calculating probabilities and running simulations.

**General Education Student Learning Outcomes:** During the semester, students will have many opportunities to develop skills needed to

1. Make meaningful connections between mathematics and other areas of study.
2. Employ scientific reasoning and logical thinking.
3. Communicate effectively using written and oral means.

**Attendance:** You may miss no more than 3 classes. Lateness between 0 and 40 minutes counts as 1/2 an absence. Once in class, stay for the full period; if you *leave early* without making prior arrangements, *you will be marked as absent or late (depending on how early you leave)*. 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 or on vibrate* 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 assignments, but be able to explain *anything* you turn in or post. It is your responsibility to cover your work. During an exam, showing someone else your work is considered cheating; you will be treated in the same way as the person who copies.

**Set enough time aside each week:** You are expected to spend 4-6 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. The math department also typically has tutoring sessions run by advanced mathematics major.

**Grade components**

**Online participation (20%):** You are expected to spend between 2 and 4 hours on each step. **To receive credit, you must provide a link in blackboard to each of your posts or comments in the appropriate content area.** You will receive between 2 and 4 points for each item below (2 = perfunctory participation, 3 = significant thought & effort, 4 = deep thought & excellent effort). **NOTE, you will be making a total of TWO postings**, all other contributions are comments on other postings or responses to comments.

1. Join the openlab and make a posting by **Sa 9/26** explaining how statistics and probability relate to your career (include a photo of yourself with an aspect of mathematics and/or your career in the background). Be sure to add appropriate tags (minimum number 3) so that the posting is easily searchable.
2. Make a 2nd posting by **Sa 10/17** focusing on a graph which appears in a newspaper. You must include a short summary of the newspaper or magazine article, a reproduction of the graph and a description of how the graph was used in the article. Make sure that you have provided a link to the original article so that students can easily find it. Remember to tag (3 minimum).
3. You will be paired with a student from the other section. By **Sa** **11/7**, comment on and make suggestions for improvement on the other student’s posting as well as create a word problem based on his/her graph.
4. By **Sa 11/28**, respond to the comment by editing your original post (please acknowledge the change as a comment to the comment). Solve the word problem that your partner has created.
5. Finally, by **Sa 12/12**, comment on your original posting on blackboard, summarizing your overall experience in the course and writing once again on how you think statistics relates to your career.

**Quizzes (20%):** At the beginning of each class, a quiz will be given based on 1. reading in preparation for the new material, 2. homework and 3. the material presented in the previous class.

**Best 2 out 3 Exams (35%):** A sample exam will be posted on the openlab one week prior to each exam. Be sure to not miss more than one exam as no makeup exams will be given.

**Final Exam (25%):** A sample exam will be posted on the openlab two weeks prior to the exam. If you miss the final exam and have been failing the course, you will receive a WU or F. Otherwise, if you have a documented illness or emergency, you will have opportunity to take a makeup final exam (small fee).

**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 B-