

**AMS 5 – STATISTICS**

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**Email:** When emailing me please write “[AMS 5]” in the subject line.

**Course Description:** AMS 5 is an introduction to statistics and statistical reasoning. Statistical methods are useful in dealing with situations that are subject to uncertain outcomes. We will develop skills that will allow for the incorporation of the uncertainty into the analysis of quantitative problems. We will study how data are collected and described, probability, the law of averages, expected value, standard error, confidence intervals, and tests of significance, correlation and regression.

**Textbook and reading:** The text for the course is *Statistics*, by Freedman, Pisani and Purves, 4<sup>th</sup> edition (2007). **We will be covering a lot of ground in a short amount of time, so you need to immerse yourself in the material.** In preparing the exams I will assume you have done all the assigned reading, homework and attended class.

**Exams:** There will be three short exams, and a comprehensive final. The exam dates are listed below. Each of these will be approximately 60 minutes long. The comprehensive final will be in class on Friday, 8/28 and take the entire class time.

**Exam Guidelines:** All exams will be closed book. One 3”x5” index card for notes will be allowed (front and back may be used). Please always bring a calculator capable of taking square roots, logs and exponentials. You must show all work for full credit.

**Your Grade:** Each short exam is worth 20 points, and the final exam is worth 40 points. Your lowest short exam grade will be dropped.

**Homework:** Homework will be assigned and collected daily. A few randomly selected problems will be graded for a total of 20 points over the five weeks. Working on the homework is the best way to assimilate the material of this (or any) course, especially in the condensed, five-week format of Summer Session.

**Tentative Schedule:** The numbers in the READING column refer to chapters in the text.

WEEK	TOPICS	READING
Week 1 (7/27 – 7/31)	Preface, data types and sampling	3, 19
	Histograms, mean and standard deviation	3, 4
	The normal curve and experiment design <b>Exam 1: ch 3, 19, 4</b>	5, 1, 2
Week 2 (8/3 – 8/7)	Probability	13
	Probability	14
	Independence and Law of Averages <b>Exam 2: ch 1, 2, 5, 13</b>	16
Week 3 (8/10 – 8/14)	Building a probability model, expected value and standard error	16, 17
	Central Limit Theorem	18
	Building a statistical model <b>Exam 3: ch 14, 16, 17, 18</b>	6
Week 4 (8/17 – 8/21)	Estimating averages, estimating percentages	23, 24, 20, 21
	Confidence intervals and tests of significance	26
	Comparing two samples	27
Week 5 (8/24 – 8/28)	Points and lines, correlation coefficient	8, 9
	Regression	10, 11, 12
	<b>Friday, August 28<sup>st</sup></b> <b>Comprehensive Final Exam</b>	

**NOTE:** If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization from the Disability Resource Center (DRC) to me right away. Because of the accelerated nature of Summer Session, it is essential that you contact the DRC as soon as possible. They can be reached at 459-2089 (voice), 459-4806 (TTY).