Statistics 101 Summer Session I 2013
Syllabus

The Wharton School, University of Pennsylvania

Instructor: Philip Ernst

Office: 414 Jon Huntsman Hall

Contact: `ernstp@wharton.upenn.edu` (215-898-1254)

Classes meet: F50 JMHH Mon, Tues, Wed, Thurs 9–10:35AM May 20th- June 28th

Office Hours: TBA

Course Philosophy

The goal of this course is to make Statistics accessible, useful, and, most importantly, fun! You are highly encouraged to meet with me in person *at any time* to talk about lectures, homework, or about any other aspect of the course. There are *no stupid questions*. If you cannot attend office hours, please email me to schedule an individual appointment. Since this class meets over the summer, it must operate at twice the pace of Stat 101 when it is offered during the school year. To this end, it is particularly important for me to check in to make sure that no one falls behind. I *deeply* care that all of you succeed in this class and that this summer is an enjoyable and memorable experience for all.

Intended Audience and Prerequisites

This course is aimed for students with *no previous exposure* to Statistics. The course is required of all Wharton undergraduates and fulfills the College's quantitative data analysis requirement. The most important prerequisite for the class is high school algebra. This being said, the key ingredient for success is the willingness to think mathematically and, in general, the willingness to *think hard*.

Classroom Etiquette

I kindly ask that you do not engage in any behavior that may interfere with the learning of other students. During lectures and examinations, all laptops, cell phones, and other electronic devices must be put away.

1

Course Overview

Over the summer, we will develop a fundamental working knowledge base of Statistics through the following ideas:

- Summary Statistics

- Data Displays (Boxplots, Histograms, etc.)

- Counting Methods

- Basic Probability Theory and Basic Probability Models

- Random Variables, Expectation, Variance, Covariance

- Portfolio Theory

- Law of Large Numbers, The Central Limit Theory, and the Normal Distribution

- Confidence Intervals, Hypothesis Testing, p-values

- Introduction to Simple Linear Regression

The class will focus on a highly *intuitive* and conceptual understanding of these concepts. To make for lively discussion, a plethora of examples presented in class will be drawn from business, sports, and popular culture.

Course Materials

Textbook: Statistics for Business Second Edition, Stine and Foster, 2013 (there will be additional readings as well, but this will be the primary required text).

Computer Software: **JMP 10**, available at `http://upenn.onthehub.com` (3-year license for $59.95) Make sure to select your platform (Windows/Mac) when purchasing JMP. You will need this software to complete several homework problems. The software will also be used in Stat 102.

Calculator: Although not required, I *highly recommend* that you have a TI-83, 83+, 84, 84+, or 89. Using the above TI calculators will save you a lot of time on homework, on quizzes, and on examinations.

Assignments, Examinations, and Grading Policy

Homework

There will be six homework assignments. Homeworks will be assigned on Canvas and will usually be due a week later in class. Homework will be graded out of 50 points. Each homework must be neat and stapled. *No late homework will be accepted.* The reason for this policy is that I want to post the solutions immediately after the due date. Graded homework will be returned in class. Scores for homeworks are finalized one week after the graded copies are handed back. Thereafter there will be no changes and no re-grading. Do not delay checking your graded homeworks to the end of the semester. You will be allowed to drop the lowest of your six homework scores.

Homework is the *most* important part of this course. To succeed in Statistics, one must *individually* do *a lot* of practice questions and think deeply about the concepts. Simply put, "Statistics is not a spectator sport!"

You are encouraged to work together on homework and to consult me with any questions but you *must* submit your own solutions, with your own write-up and in your own words. There can be no collaboration on the actual *writing*. Failure to comply will result in severe penalties.

Examinations

- One midterm examination will be held Monday, June 10th, 6:00-8:00pm

- The final examination will be Thursday, June 28th, 6:00-8:00pm

On both the midterm and the final examinations, you will be provided with a formula sheet containing all necessary formulas for the exam (this is designed to discourage you from spending time memorizing formulas rather than focusing on *understanding* the material). You will be required to bring your own calculator and will be given blank scrap paper. The exams will be in long answer format.

The room assignments will be announced in class and on Canvas closer to the exam dates. **No make-up exams will be given**. Do not register for the class if you have prior commitments on these days.

Attendance

Active attendence is absolutely critical to learning the material. As such, this component is worth 10 % of your final grade. If you must miss class, please email me to explain why you are unable to come.

Quizzes

Four ten minute quizzes will be given in-class over the course of Stat 101. Each of the quizzes will be announced at least one week in advance. The goal of the quizzes is to encourage everyone to remain current with the material. It is nearly impossible to "cram"

and to do well in Statistics. The quizzes will be straightforward in nature; they are designed to reward those who are remaining on top of the material. Your lowest quiz score will be dropped. **No make-up quizzes will be given**.

Grading and Grading Policy

Your course grade will be calculated as follows:

- Homework: 20% (Your lowest homework score is dropped from this calculation)

- Quizzes: 10% (Your lowest quiz score is dropped from this calculation)

- Attendance: 10%

- Midterm: 25 %

- Final: 35 %

Class Videos

I will do my best to ensure that all lectures and review sessions are videotaped for the benefit of all students.

Canvas

Statistics 101 will use Canvas. You can gain access by going to `https://wharton.instructure.com/login`. All materials for this course will be distributed and managed via this website, and you will be able to monitor your grade entries throughout the semester. An important feature of Canvas is the discussion board where everybody can place questions and comments. We will be using it extensively for answering your questions about homeworks, quizzes, and examinations. You are urged to go here first to see whether your question has already been asked and answered, and, if not, to place your question so it can be answered once for everybody.

Note for non-Wharton students: If you do not have a Wharton computing account, you will need to establish one to access the website. The account also provides access to the computing labs in Wharton and to the intranet. To get an account, on or after the first day of classes, go to `http://accounts.wharton.upenn.edu`. After you have obtained your account, allow up to 12 hours for activation.