WEEK 1 - INTRODUCTION TO DATA

In the first week of the course, we will review a course outline and discover the various concepts and objectives to be mastered in the weeks to come. You will get an introduction to the field of statistics and explore a variety of perspectives the field has to offer. We will identify numerous types of data that exist and observe where they can be found in everyday life. You will delve into basic Python functionality, along with an introduction to Jupyter Notebook. All of the course information on grading, prerequisites, and expectations are on the course syllabus and you can find more information on our Course Resources page.

Less

Key Concepts

- Develop an outlook for the course and summarize future concepts and objectives
- Explore various uses of statistics and examine where data originates from
- Properly identify various data types and understand the different uses for each
- Understand the basic functions of Python to import, clean, and manage data

Less

WEEK 2 - UNIVARIATE DATA

In the second week of this course, we will be looking at graphical and numerical interpretations for one variable (univariate data). In particular, we will be creating and analyzing histograms, box plots, and numerical summaries of our data in order to give a basis of analysis for quantitative data and bar charts and pie charts for categorical data. A few key interpretations will be made about our numerical summaries such as mean, IQR, and standard deviation. An assessment is included at the end of the week concerning numerical summaries and interpretations of these summaries.

Less

Key Concepts

- Understand the various graphical displays used for univariate categorical and quantitative data
- Interpret histograms and boxplots to describe quantitative data
- Obtain key interpretations used for describing quantitative data
- Create histograms, box plots, and numerical summaries through Python

Less

WEEK 3 - MULTIVARIATE DATA

In the third week of this course on looking at data, we'll introduce key ideas for examining research questions that require looking at more than one variable. In particular, we will consider both numerically and visually how different variables interact, how summaries can appear deceiving if you don't properly account for interactions, and differences between quantitative and categorical variables. This week's assignment will consist of a writing assignment along with reviewing those of your peers.

Less

Key Concepts

- Create graphs and summary statistics of multivariate data, both categorical and quantitative
- Summarize important information obtained through visualizations of multivariate data
- Communicate statistical ideas clearly and concisely to a broad audience
- Integrate statistical reasoning into decisions and situations in your daily life

Less

WEEK 4 - POPULATIONS AND SAMPLES

In this week, you'll spend more time thinking about where data come from. The highest-quality statistical analyses of data will always incorporate information about the process used to generate the data, or features of the data collection design. You'll be exposed to important concepts related to sampling from larger populations, including probability and non-probability sampling, and how we can make inferences about larger populations based on well-designed samples. You'll also learn about the concept of a sampling distribution, and how estimation of the variance of that distribution plays a critical role in making statements about populations. Finally, you'll learn about the importance of reading the documentation for a given data set; a key step in looking at data is also looking at the available documentation for that data set, which describes how the data were generated.

Less

Key Concepts

- Distinguish between probability and non-probability sampling
- Describe the concept of a sampling distribution, and how one can make inference about a population parameter based on the estimated features of that distribution
- Identify appropriate analytic techniques for probability and non-probability samples
- Explain how poorly-designed samples can lead to descriptions of population features that are biased in nature

Less

You passed this course! Your grade is 100.00%.

Item	Status	Due	Weight	Grade
Assessment: Different Data Types Quiz	Passed	Sep 20 11:59 PM PDT	10%	**100%**
Assessment: Numerical Summaries Quiz	Passed	Sep 27 11:59 PM PDT	10%	**100%**
Python Assessment: Univariate Analysis Quiz	Passed	Sep 27 11:59 PM PDT	17.50%	**100%**
Pizza Study Design Assignment Submit your assignment and review 3 peers' assignments to get your grade.			20%	**100%**
Submit your assignment	Passed	Oct 4 11:59 PM PDT		
Review 3 peers' assignments.	3/3 reviewed	Oct 7 11:59 PM PDT		
Python Assessment: Multivariate Analysis Quiz	Passed	Oct 4 11:59 PM PDT	17.50%	**100%**
Assessment: Distinguishing Between Probability & ... Quiz	Passed	Oct 11 11:59 PM PDT	10%	**100%**
Generating Random Data and Samples Quiz	Passed	Oct 11 11:59 PM PDT	15%	**100%**