

Basic Statistics - Jiang

Overview	
Disciplinary Topic	Statistics - Descriptive Statistics, Histograms, Scatter Plot
Data Science Learning Goals	Students will know how to calculate basic statistics such as mean, standard deviation and relate the use of these statistics learned in class with real world data and use them to describe the data
	Students will be able to construct visualization tools such as histogram to get the range and distribution of the data set.
	Students will also learn how to interpret the results.
	Students will be able to use popular data science tools such as Python to analyze the data.
Student Knowledge Pre-reqs	Course - Calc 2; this module doesn't have any prereqs → no programming prereq either
Data Set	
Brief Description of data set	Smart City Building data - data related to energy use in buildings
Rationale for using this data set	Support inter-collaboration among universities and modules by using data from Smart Cities course Use a variety of datasets in this course → has no discipline specific data that has to be used
Link to Data Set	Data Set
Instructional Material	
Student facing materials (i.e. any slides, youtube links, etc.)	Demo
	Slides

	Video
Instructor materials (did you use anything to prep for module usage)	Peers & Youtube → Setting up github classroom and create google colab project
Facilitator guide (notes to help other instructors use this module)	
Student Assessments	
Link to Student Tasks	Assignment
Link to Assessment Rubrics	Rubric

Hypothesis testing - Jiang

Overview	
Disciplinary Topic	Statistics - Inferential Statistics, Hypothesis testing, Histogram, Boxplot, Nonparametric Statistics
Data Science Learning Goals	Students will learn how to import the high frequency real time data, explore and preprocess the data, and conduct hypothesis testing.
	Students will learn to test the model assumptions before testing the hypothesis and select the appropriate technique to analyze the given data.
	Students will also use visualizations such as box plots to understand the data.
	Students will also learn how to perform hypothesis testing in a systematic way and interpret the results.
Student Knowledge Pre-reqs	Basic statistics
Data Set	
Brief Description of data set	LEWAS data

Rationale for using this data set	Support inter-collaboration among universities and modules by using data from Smart Cities course
Link to Data Set	Data Set
	Data Set
Instructional Material	
Student facing materials (i.e. any slides, youtube links, etc.)	Demo
	Slides
	Video
	(Soon) to have README file help
Instructor materials (did you use anything to prep for module usage)	NA
Facilitator guide (notes to help other instructors use this module)	
Student Assessments	
Link to Student Tasks	Assignment
Link to Assessment Rubrics	Rubric