

HPS201 Notes

T2 2020

Week 1- Measurement, data visualisation, and distributions

Week 2- Central tendency, variance, z-scores

Week 3- Sampling distributions, hypothesis testing

Week 4- Chi square

Week 5- T-tests

Week 6- Correlation

Week 7- Regression

Week 8- Analysis of variance (ANOVA)

Week 9- Post-hoc tests

Week 10- Factorial ANOVA

A sheet with all needed formulas and tables is provided on the unit site

Week One

Part One

- Population vs. Sample
 - Population- everyone that you are interested in learning about
 - Sample- the specific people that you end up studying
 - Example: you want to study employees working in retail, but you won't be able to gather information on every individual
 - You are able to study some workers from each suburb (sample), and it gives you a general understanding that you could apply to all retail workers (population)
- Parameter vs. Statistic
 - Parameter has to do with a Population
 - Example: average salary of lawyers in Australia
 - Statistics have to do with a Sample
 - Example: measuring the height of students in a school
 - Two main types of statistics-> Descriptive and Inferential
 - Descriptive
 - Used to describe the data
 - Summarises the data, gives an average or rate
 - Inferential
 - Used to answer questions
 - If you collect data on a group of law students, you can use inferential statistics to infer the characteristics of all law students

Part Two

- Variables
 - Variables can be characteristics, quantities, traits, etc.
 - Examples include: age, time, mood, gender, test scores
- Discrete vs. Continuous
 - Discrete variables- limited amount of values
 - Variables that are typically one or the other (gender, high/medium/low)
 - Continuous variables- have many different values
 - Examples include: age, height, IQ scores
- Categorical data vs. Measurement data
 - Categorical data has to do with discrete variables
 - Typically summarised with percentages (60% of students are male)
 - Measurement data has to do with continuous variables

- Typically summarised using averages (the average height of the team is 168 cm)
- Discrete variables lead to categorical data-> percentages
- Continuous variables lead to measurement data-> averages
- Independent variables vs. Dependent variables
 - Independent variables (IV)-> controlled by the researcher
 - Example: The researcher can control the time frame and gender of participants.
 - Dependent variables (DV)-> measured by the researcher
 - Example: The researcher looks at the amount of pies (DV) someone can bake in comparison to the number of years (IV) they've been baking.
 - The amount of pies is the dependent variable

Part Three

- Measurement scales- the type of scale depends on the type of data
 - Nominal
 - Categories with different names, but they are all equal
 - There is no order to these categories, and none is valued more than the other
 - Example: Religions
 - Ordinal
 - Categories with different names, but there is an order to them
 - There is no established "distance" between the categories
 - Example: Size (small, medium, large)
 - Interval
 - Values on a scale, and there is an equal distance between each point
 - However, there is no "zero point" as 0 degrees still indicates a temperature
 - Example: Temperature (the distance between 40-50 degrees is the same as 10-20 degrees)
 - Ratio
 - Same as interval, but there is a zero point
 - Example: Time (0 seconds means that no time has passed)
- Data organisation
 - Frequency distributions
 - Lists the frequencies of each data point