**STATISTICS BASICS**

**Data Types & Patterns & Graphs**

**EXERCISE 1.** At what level are each of the following variables operationalized?   
Numerical (*Continuous/Discrete)* or Categorical (*Nominal/Ordinal*)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Variable Name** | **Value Labels** | **Data Type** |
| 1 | Age | 1, 2, 3, .... | *Continuous* |
| 2 | Sex | male, female, other | *Nominal* |
| 3 | Class standing | freshman, sophomore, junior, senior | *Ordinal* |
| 4 | Marital Status | married, single, divorced, widowed | *Nominal* |
| 5 | Median Household Income | annual household income in dollars | *Continuous* |
| 6 | How much you like the food on campus? | a lot, some, a little, other | *Ordinal* |
| 7 | The number of toxic waste sites in your community | 0, 1, 2, 3, .... | *Discrete* |
| 8 | The number of toxic waste sites in your community | 0, 1–5, 6–10, 11+ | *Discrete* |
| 9 | Your GPA | below average, average, above average | *Ordinal* |

**EXERCISE 2.** Go to the National Opinion Research Center’s 2008 General Social Survey Codebook at [http://sda.berkeley.edu/D3/GSS08/Doc/gs08.htm](https://sda.berkeley.edu/D3/GSS08/Doc/gs08.htm) (Alphabetical Variable List). What are the types of data for the following variables?

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Data Type** | **Variable Name** | **Data Type** |
| ABLEGAL | *Ordinal* | MUSICALS | *Ordinal* |
| ACTLIT | *Nominal* | NATBORN | *Nominal* |
| ADULTS | *Discrete* | NUMKIDS | *Discrete* |
| AGE | *Discrete* | PAINCURE | *Ordinal* |
| BIBLE | *Nominal* | POLVIEWS | *Ordinal* |
| BLKZONE | *Ordinal* | RACE | *Nominal* |
| CARSGEN | *Ordinal* | SEX | *Nominal* |
| CONROCK | *Ordinal* | TRUST | *Ordinal* |

**EXERCISE 3.** The number of passengers of an airline company by years is given in the table below. Create a bar chart based on these data.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Years** | 2010 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| **Number of passengers (x1000)** | 5 | 7 | 13 | 10 | 20 | 22 | 17 | 16.5 | 27 |

**EXERCISE 4.** Create a frequency histogram from the data in the table below. What can you conclude about the shape of the distribution?

|  |  |
| --- | --- |
| **Income (In thousands of dollars)** | **Number of families** |
| 16-22 | 2 |
| 23-29 | 3 |
| 30-36 | 5 |
| 37-43 | 8 |
| 44-50 | 8 |
| 51-57 | 10 |