



# Statistics

## Exercises 1

1. Classify the following variables as qualitative or quantitative:
  - The political party of a Member of Parliament.
  - The number of elections in which a politician has been elected to Parliament.
  - The postcode of the politician.
  - The € value of bribes or kickbacks received by a politician from a construction company.
  - The number of times the politician has spoken in Parliament.
  - The phone number of the politician.
  - The political leaning of a voter: extreme right, right, centre right, centre, centre left, left, extreme left.
  - The public university closest to your home.
  - The reply of a student to the question “How do you rate your lecturer”: brilliant, good, ok, boring, incomprehensible so I’m going to Pepe.
  - The time spent studying this course.
  
2. For the qualitative variables in the previous question, indicate which are dichotomous, which are nominal, and which are ordinal and for the quantitative variables, indicate which are discrete and which are continuous.
  
3. We wish to study the opinions of Madrileños on the possible Independence of Cataluña (strongly against, against, neither in favour nor against, in favour, strongly in favour). With this objective, we decide to take a sample of 20 UC3M students. Define:
  - The population of interest.
  - The variable.
  - What type of variable it is.
  - The sample.
  - The datum that corresponds with your opinion.
  
4. In the previous question, does the way of choosing the sample seem reasonable? Explain your answer briefly.



6. The following questions were asked in a Daily Record survey of Scottish opinions in June 2014:
- Should Scotland be an independent country?
  - On a scale of 1 to 10, how likely is it that you would vote in a referendum on Scottish independence? (1 means absolutely certain would not and 10 absolutely certain would).

The technical information associated with the survey was as follows.

**Technical note:**

This presents the topline results from Scotland.

Results are based on a survey of 1,003 respondents (adults aged 16+) conducted by telephone

Fieldwork dates: 26th May 2014 – 1st June 2014

Data are weighted by: age, sex and working status using census data; tenure using Scottish Household Survey data; and public-private sector employment using Scottish Government Quarterly Public Sector Employment series data

Where results do not sum to 100%, this may be due to computer rounding, multiple responses, or the exclusion of “don’t know” categories

Results are based on all respondents (1,003) unless otherwise stated

For each of the two questions, what are the population, the variable and the sample size? Are there any factors that you think could bias the survey results?

7. A recent YouGov poll of January 2018, contained the following question about the outcome of the Brexit negotiations.

**And looking forward, what do you expect the outcome of the Brexit negotiations will be?**

There will be a deal that gets most or all of the things the British government want

There will be a deal that gets only some of the things the British government want

There will be a deal that gets few if any of the things the British government want

There will not be any deal at all

The variable in this question is:

- i. Quantitative and Discrete.
- ii. Qualitative and Continuous.
- iii. Quantitative and Ordinal.
- iv. None of the above.