

- Academic Year: 20223-2024
- Department: Computer Science and Engineering
- Course: Introduction to Probability and Descriptive Statistics

## TD1

### Exercise 1

For each of the following studies, specify: the statistical unit, the population, the characteristic under study, and its nature.

1. Study concerning the lifespan of electric lamps.
2. Investigation of worker absenteeism, in days, at a factory during the year 2018.
3. Distribution of first-year MI students based on the grade received on their Baccalaureate diploma.
4. Effort to model the number of collisions involving two cars across a set of 100 randomly selected road intersections in a city. Data are gathered over a year, and the number of accidents at each intersection is measured.

### Exercise 2

The data table below represents the blood types of students in groups 1, 2, and 3 of section 1 of the first year MI.

1. Identify the population.
2. Identify the characteristic. What is its nature?
3. Provide the set of modalities.
4. Construct a statistical table including the relative frequencies in percentages.
5. Provide two graphical representations suitable for this type of characteristic.

Table 1: Blood Types of Students

A	O	O	O	A	AB	B	B	A	A
B	AB	A	A	B	O	A	A	O	B
A	O	B	O	O	A	A	O	O	A
A	B	AB	O	A	B	O	O	A	A
O	O	A	A	AB	B	A	A	O	A
AB	B	A	A	AB	B	A	O	O	B

### Exercise 3

A cereal manufacturer conducts a survey to verify if the cereal boxes indeed contain 500 grams as indicated on the packaging. A sample of 1000 boxes produced in one day is checked. The following data is obtained:

Weight Range (g)	Number of Boxes ( $n_i$ )
[490, 496[	33
[496, 498[	168
[498, 500[	415
[500, 502[	293
[502, 504[	75
[504, 510[	16

1. Identify the population.
2. Identify the characteristic. What is its nature?
3. calculate the increasing and decreasing cumulative frequency .
4. plot the cumulative curve.