- 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.