

Descriptive Statistics Tutorials

Exercise 1 The following table shows the number of smoking mothers at childbirth, classified by age:

Age x_i	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Count n_i	5	5	4	3	3	5	1	4	3	2	3	2	1	1	1

1. Identify the modalities (categories) of the variable. Is it a discrete or continuous variable?
2. Compute the relative frequencies of each modality and represent them using a bar chart.
3. Compute the cumulative frequencies (empirical distribution function) and plot the cumulative frequency curve. Determine the median and the quartiles of the sample.
4. What is the frequency corresponding to the interval [22 ; 25]?
5. Compute the sample mean, variance, and standard deviation.
6. Briefly comment on these results.

Exercise 2 A study of head circumference ((*périmètre encéphalique*)) in a sample of 48 children provided the following results (in centimeters), presented as an ordered statistical series: 40.2; 40.5; 41.3; 41.9; 42.2; 42.2; 43.0; 43.5; 43.8; 44.3; 44.4; 44.6; 44.6; 44.9; 45.1; 45.3; 45.9; 45.9; 46.2; 46.4; 46.4; 46.4; 46.8; 46.9; 47.0; 47.0; 47.0; 47.0; 47.3; 47.3; 47.7; 47.8; 47.9; 48.2; 48.4; 48.5; 49.3; 49.3; 49.5; 49.6; 49.9; 49.9; 50.3; 50.8; 51.2; 51.7; 52.2; 53.8.

You are asked to perform the following tasks:

1. Group the values into classes (use approximately $\simeq \sqrt{N}$ classes).
2. Construct the frequency distribution table.
3. Draw the histogram of the counts and the cumulative frequency curve.
4. Compute all the statistical parameters.
5. Determine the median, as well as the first and third quartiles, graphically.
6. Comment on your results.

Exercise 3 For twenty women suffering from anemia, certain biological and sociological characteristics were recorded. The table below summarizes the data obtained.

Individual	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blood group	B	AB	A	A	O	A	O	A	AB	A	A	AB	O	O	A	AB	A	O	B	A
Age	38	42	16	51	28	34	21	54	35	22	18	40	41	31	25	64	60	55	49	42

1. Identify the population and state the total number of individuals.
2. Specify the type of each statistical variable.
3. Represent the blood group variable graphically.
4. Determine the mode of the blood group variable.

B. T.