Statistics with Python
Practicals 1

Sample standard deviation

Exercise 1

☞1 point
Create an numpy-array, containing the data 1, 2, 3, ..., 10 . Calculate mean and **sample** standard deviation.

Binomial distribution

Exercise 2

☞2 points
According to research, pure blue eyes in Europe approach greatest frequency in Finland, Sweden, and Norway (at 72%), followed by Estonia, Denmark (69%); Latvia, Ireland (66%); Scotland (63%); Lithuania (61%); The Netherlands (58%); Belarus, England (55%); Germany (53%); Poland, Wales (50%); Russia, The Czech Republic (48%); Slovakia (46%); Belgium (43%); Austria, Switzerland, Ukraine (37%); France, Slovenia (34%); Hungary (28%); Croatia (26%); Bosnia and Herzegovina (24%); Romania (20%); Italy (18%); Serbia, Bulgaria (17%); Spain (15%); Georgia, Portugal (13%); Albania (11%); Turkey and Greece (10%). Further analysis shows that the average occurrence of blue eyes in Europe is 34%, with 50% in Northern Europe and 18% in Southern Europe.
Question : If we have 15 French students in the classroom, what is the chance of finding three, six, or ten students with blue eyes ?

Poisson distribution

Exercise 3

☞2 points
In 2016 there were 62 fatal accidents on streets in France. Assuming that those are evenly distributed, we have on average 62/(365/7)=1.19 fatal accidents per week. How big is the chance that in a given week there are no, two, or five accidents ?

☞The answers to the questions above must be handled in today, at the end of the practicals session !