What will be on the exam:

1. Solve a problem in probability theory. Problems in the style of files Lecture 1 - Lecture 10 and your Individual assignments.
2. Answer a theoretical question on mathematical statistics. To prepare for this, you need to use Lecture 11 and the theory from your assignments in Google Colab.

The exam paper will contain 6 problems on probability theory and 2 theoretical questions on mathematical statistics. You are only allowed to use your own notes.

List of theoretical questions on mathematical statistics:

1. What is mathematical statistics, what does it study. Population and sample.
2. Statistical distribution of the sample. Discrete and continuous cases.
3. Graphical representation of a statistical series. Empirical cumulative distribution function (eCDF)
4. Numerical characteristics of the sample
5. Empirical moments. Asymmetry and kurtosis
6. Covariation and correlation. Quantiles and quartiles
7. Standard normal distribution and it's applications
8. Normality tests for distribution
9. Pearson's $\chi^2 -$ test
10. Linear regression
11. K-means cluctering