1st year

Statistics

Semester 2

Lesson 1.Probability

1.1 Introduction to the concept of probability
1.1.1 Conceptions of the probability
1.1.2 Events. Events algebra
1.2 Axiomatic of probability
1.2.1 Axiomatic of Kolmogorov
1.2.2 Immediate properties
1.3 Conditional probability
1.3.1 Conditional probability
1.3.2 Probability of the intersection of events
1.3.3 Theorem of the entire probability
1.3.4 Theorem of Bayes

Lesson 2.Random variables

2.1 Random variables
2.1.1 Discrete and continuous random variables
2.1.2 Distribution function
2.1.3 Probability function
2.1.4 Density function
2.2 Characteristics of the random variables
2.2.1 Expected value
2.2.2 Moments
2.2.3Other characteristics
2.3 Random vectors
2.3.1 Joint distribution
2.3.2 Marginal distributions
2.3.3 Conditional distributions

Lesson 3.Probability distribution models

3.1 The normal distribution
3.2 Distributions associated with processes of Bernoulli
3.3 Distributions associated with processes of Poisson

1st year

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Lesson 4.One-dimensional descriptive statistics

4.1 Synthesis of the data
4.2 Measurements of position and location
4.2.1 Mean, median and mode
4.2.2 Quartiles and percentages
4.3 Measurements of dispersion and form
4.3.1 Variance, standard deviation
4.3.2 Coefficients of asymmetry and kurtosis

Lesson 5.Statistical analysis of two variables

5.1 Two-dimensional descriptive statistics
5.2 Linear adaption