

SYLLABUS

2003/2004

Chapter I: Introduction


1. INTRODUCTION. The Science of Statistics: Object and History. The role of Statistics in Business and Economics. The Statistical Method: Population and Sample.

Chapter II: Elementary Statistical Theory (I)

2. DESCRIPTIVE STATISTICS: BASIC CONCEPTS. Statistics Variables. Measurement Scales: Categorical and Numerical Variables.
3. ANALYSIS OF UNIDIMENSIONAL CHARACTERISTICS: FREQUENCY DISTRIBUTIONS. Frequency Table. Graphical Representations.
4. ANALYSIS OF UNIDIMENSIONAL CHARACTERISTICS: MEASURES OF CENTRAL TENDENCY. Averages: Basic features. Mode, Median and Arithmetic Mean. Other Averages. Percentiles.
5. ANALYSIS OF UNIDIMENSIONAL VARIABLES: MEASURES OF VARIABILITY. Introduction to the concept of dispersion. Absolute dispersion measures. Relative dispersion measures. Standardized Variables or Z-Variables. Tchebycheff's Inequality.
6. ANALYSIS OF UNIDIMENSIONAL VARIABLES: MOMENTS AND MEASURES OF ASSYMMETRY AND SHAPE. Moments. Asymmetry measures. Shape of a distribution.
7. ANALYSIS OF UNIDIMENSIONAL VARIABLES: CONCENTRATION. Concentration vs. Dispersion. Lorenz's Concentration Curve. Gini's Coefficient. Medial Value.

Chapter III: Elementary Statistical Theory (II)

8. ANALYSIS OF BIDIMENSIONAL VARIABLES: CORRELATION. Correlation Table. Graphical Representations. Marginal frequency distributions. Conditional Distributions. Bidimensional Moments. Covariance. Pearson's Correlation Coefficient. Independence and Incorelation.

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9. ANALYSIS OF BIDIMENSIONAL VARIABLES: LINEAR REGRESSION. Empirical Regression Curve. Least-Squares Linear Regression. Goodness of fit: Coefficient of Determination. Forecasting and Elasticity.
10. ANALYSIS OF MULTIDIMENSIONAL VARIABLES: Introduction. Multidimensional Distributions. Mean Vector. Variances and Covariances Matrix. Correlations Matrix.
11. MULTIDIMENSIONAL CORRELATION AND REGRESSION. Least-squares multiple linear regression. Multiple correlation coefficient. Partial correlation coefficients.

Chapter IV: Attributes.

12. ATTRIBUTES ANALYSIS. Analysis of unidimensional attributes: Frequency distribution and graphical representations. Analysis of bidimensional attributes. Contingency Tables. Association and Independence. Contingency Coefficients. Spearman's Coefficient.

Chapter V: Index Numbers

13. INDEX NUMBERS. Definition of an index number. Simple Index Numbers. Chained Index Numbers. Composite Index Numbers. Price, Quantity and Value Index Numbers. Properties of Composite Index Numbers. Repercussion and Participation. Divisia's Index Number. Analyzing The Most Common Index Numbers.

Chapter VI: Time Series Analysis and Forecasting

14. INTRODUCTION. Definition. Different Focuses for a Time Series Analysis. Graphical Representations.
15. TIME SERIES ESTIMATION: CLASSICAL METHODS. Times Series Decomposition into components. Methods of Composition. Fitting of the trend-cyclical component: Graphical Method, Moving averages methods, Least-square methods. Fitting of Seasonal Variation: Moving averages methods, Least-square methods. Seasonally adjusted data. Deseasonalized data. Analysis of the Irregular Component and Goodness of Fit. Forecasting.

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16. TIME SERIES ESTIMATION: EXPONENTIAL SMOOTHING. Exponential Smoothing. Exponential Smoothing model with no seasonal component: Simple exponential smoothing model, Brown's and Holt's models. Exponential Smoothing adjusted for trend and seasonal variation: Holt-Winter's model.

Evaluation methods

The written exams will be officially set by the teachers. The time, classroom and the contents of the exams will appear on the exam notice board.

Each subject will be composed of two partial exams and a final exam. The first partial exam will place on 06-03-2004 and the second partial exam on 07-06-2004. The success in any partial exam will mean the success in this partial.


The final exam will be on 30th of June 2004. If either of the two partial exams has been passed, the students will be examined on the contents of the failed partial exam. If both partial exams have been passed, the students will have passed the whole subject. In this case the mark of the exam will be the mean of the marks of the two partial exams. If the students want to improve their final marks, they can go to the final exam with the whole contents. However the student needs to notify the teacher about his/her interest previously.

The structure of the exam will consist of two parts:

- a) Theory. This is a series of questions. Each of these questions has four answers, one of which is correct. The right answer will be marked with one point, whereas the failed answer will be marked with -0.25 points. The questions that have not been answered will be marked with no points. The mark of this exam will be 40% of the final mark of the subject. It is necessary for the student to obtain a mark equal to or greater than 3 points in the theory in order to pass the subject.
- b) Problems. This part consists of several exercises on the contents of the subject. This part will be 60% of the final mark, whereby a minimum of 3 points is necessary to pass.

The exam will be passed if the mark is equal to or greater than 5. If the mark of any exam (partial or final exams) is less than five, the students will have failed.

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In the practical part, the student will be able to use a calculator. The student will be not able to use any tool in the theoretical exam.

The teacher can use any other valuations to obtain the final mark of the exam (for instance active participation and class attendance).

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