

## Statistical Methods with Applications in Finance

### QUA 512

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### Objectives & Course Specification

The objective of this course is to introduce students to the basic elements of probability and statistics, and to mathematical tools that are used in the field of finance. It covers descriptive statistics, elements of probability theory, sampling estimation, inference, and hypothesis testing. Students will be introduced to other topics such as linear regression analysis. SPSS statistical package will be used in this course.

### Grading Distribution

|                   |                    |
|-------------------|--------------------|
| <b>PROJECT</b>    | <b><u>20%</u></b>  |
| <b>HOMEWORK</b>   | <b><u>20%</u></b>  |
| <b>MED EXAM</b>   | <b><u>20%</u></b>  |
| <b>FINAL EXAM</b> | <b><u>40%</u></b>  |
| <b>TOTAL</b>      | <b><u>100%</u></b> |

### Text Book Recommended

1. David M. Levine, Kathryn A. Szabat, David F. Stephan: Business Statistics: A First Course, 7th Global Edition, Pearson.
2. د. محمد بلال الزعبي و أ. عباس الطلافحة: النظام الإحصائي SPSS: فهم وتحليل البيانات الإحصائية (2012)، دار وائل للنشر، الأردن.

### Content of the Course and Session Plan

| Chapter   | Title  | Required Topic  |
|-----------|--|---|
|           | Introduction   | Definitions   |
| <b>7</b>  | Sampling distributions                               | Concept of sampling distribution. Sampling distribution of the mean.  |
| <b>8</b>  | Confidence Interval of Estimation                    | Confidence Interval for the mean  |
| <b>9</b>  | Fundamentals of Hypothesis Testing: One-Sample Tests | Fundamentals of Hypothesis-Testing Methodology. t Test of Hypothesis for the mean   |
| <b>10</b> | Two-Sample Tests and One-Way ANOVA                   | Comparing the Means of Two Independent Populations (Independent Samples t Test). Comparing the Means of Two Related Populations (Paired Samples t Test). Analysis of Variance: One Way ANOVA.   |
| <b>11</b> | Chi-Square Tests                                     | Chi—Square Test of Independence<br>Chi—Square Test of homogeneous   |
| <b>12</b> | Simple Linear Regression                             | Types of Regression Models. Determining the Simple Linear Equation. Measures of Variation. Assumption of Regression. Inferences About the Slope and Correlation Coefficient. Estimation of Mean Values and Prediction of Individual Values. |