

## **Bachelor course(Quantitative Analysis)**

### **QUA 107**

#### 1.Course Description

The course is designed for the purpose of providing an introduction to Business Statistics. This course basically deals with descriptive statistics, which will be the focus of the course with an abbreviated introduction to inferential statistics. The topics covered in the course include classifying, analyzing, and presenting numerical data; frequency distribution, averages, dispersion, basic probability, probability distributions, and index numbers.

#### 2.Course Main Objective

The main purpose of this course is to provide basic knowledge about collecting, organizing, summarizing, describing, and presenting data to provide information, which are stated in numerical form, for the purpose of making effective business decisions.

### **QUA 207**

#### 1.Course Description

The course is designed for Business Statistics. It is basically dealing with Inferential statistics, which will be the focus of the course. The topics covered in the course include Central limit theorem and sampling distribution; statistical inference involving means, proportions; ANOVA; Chi-Square Tests; and simple regression.

#### 2. Course Main Objective

The main purpose of this course is to provide basic knowledge about inferential statistics for the purpose of making effective business decisions.

### **QUA 204**

#### 1.Course Description

The course is designed to provide knowledge about system of linear equations, use of matrices for solving the system of linear equations, using the concept of vector space to visualize the solution of problems.

#### 2. Course Main Objective

The main purpose of this course is to train students to apply techniques of linear algebra in business.

### **QUA 217**

#### 1. Course Description

An introduction to Operations Research for solving managerial problems and the concept of model building. Basic concepts of linear programming and its economic and managerial applications in the allocation of resources and investment planning; general formulation, graphical solution, the simplex method, the transportation problem, duality theorem, shadow prices, the principle of complementarity, sensitivity analysis to parameters of the program: the lower limit of decreasing resources and the upper limit of increasing them without affecting shadow prices, the lower limit of decreasing the profit and the upper limit of increasing it without affecting the optimal production planning, economic interpretation. (Software packages are used)

## 2. Course Main Objective

The purpose of this course is to provide the students with the following capabilities:

- Objective 1: Develop analytical problem solving and decision-making thinking.
- Objective 2: Build Management Science based models of management problems.
- Objective 3: Apply readily available software packages for solution of management problems.
- Objective 4: Understand the results of computer modeling.
- Objective 5: Select the appropriate analytical technique to real world problems.
- Objective 6: Summarize and present analysis of results in a clear and a coherent manner.

## **QUA 307**

### 1. Course Description

The aim of this course is the understanding of forecasting methods for economic, social and administrative phenomena , to assist it in interpretation of current and future behavior for decision-making and policy based on sound statistical tools

### 2. Course Main Objective

- Understanding forecasting methods for Business, Economics, Social and Administrative phenomena.
  - Assist in interpretation of current and future behavior for decision-making and policy making based on sound statistical tools.
  - Explain the consequences to the Management based on the data analysis.
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## Decision Science Courses

### **SDE 546**

#### 1. Course Description

This course investigates several probability models that are important to operations research applications. Models covered include Markov chains, birth and death processes, queuing theory, reliability theory, scheduling and inventory theory, and decision theory. The course emphasizes both the theoretical development of these models and the application of the models to management science. Application areas include finance, marketing, facilities design, production and energy systems.

#### 2. Course Main Objective

This Course aims to make students acquire the analytical and critical thinking skills needed to identify, analyze, and evaluate alternative solutions to Decision Sciences problems, introduce students to use quantitative methods and techniques for effective decisions-making; model formulation and applications that are used in solving business decision problems.

### **SDE 552**

#### 1. What is the main purpose for this course?

In depth study of special topics in Decision Sciences which are determined by the department council according to the recent research and studies.

#### 2. Course Description:

In depth study of special topics in Decision Sciences which are determined by the department council according to the recent research and studies.

### **SDE 562**

#### 1. What is the main purpose for this course?

The main purpose of this course is to provide comprehensive knowledge about the applications of Multivariate Statistical Methods of data analysis and also to provide practical knowledge on the applications and use of software packages.

#### 2. Course Description:

This course provides a comprehensive survey of the multivariate normal distribution and related distributions, including Hotelling T<sup>2</sup> and Wishart distribution and their use illustrated in statistical estimation and hypothesis testing in multivariate normal models. Additional topics introduced and applied include multivariate analysis of variance and covariance, canonical correlation, principal component analysis, factor analysis, discriminate analysis, and cluster analysis.

## **SDE 571**

1. What is the main purpose for this course?

The emphasis in this course is on the conceptual development of major concept, models, and algorithms in multiple objective programming and decision-making. Important aspects of this development include problem formulation, properties of solutions, algorithmic solution approaches, and applications of multiple criteria decision-making (MCDM).

## **SDE 572**

1. What is the main purpose for this course?

Provide general prospective of project management; and examines the organization, planning, and controlling of projects and provides practical knowledge on managing project scope, schedule and resources.

### 2.Course Description:

Examines the organization, planning, and controlling of projects and provides practical knowledge on managing project scope, schedule and resources. Topics include project life cycle, work breakdown structure and Gantt charts, network diagrams, scheduling techniques using the Critical Path Method (CPM) and the Program Evaluation and Review Technique (PERT) and resource allocation decisions. Concepts are applied through team projects and tutorials using project management software.

## **SDE 598**

1. What is the main purpose for this course?

The aim of this course is to introduce students to the novel concepts of Game Theory with special emphasis on its applications in diverse fields and current research.

## **SDE 599**

1. What is the main purpose for this course?

The main purpose of this course is to train students on working on academic research by going through a research problem and following a proper scientific process to come up with an academic research paper.

### 2.Course Description:

The candidate, in undertaking a project, is expected to demonstrate a strong ability to apply skills and techniques acquired during the program to solve business related problems.

## **SDE 542**

1. What is the main purpose for this course?

This course is designed to give students a better understanding of the importance of forecasting in business. The aim of the course is to teach students fundamentals of forecasting in business for the purpose of using these tools to planning and decision-making.

2. Course Description:

Modeling of both stationary and non-stationary time series. Autoregressive (AR) processes and moving average (MATH) processes, as well as mixed (ARMA) processes, are discussed, along with model identification and estimation and forecasting procedures. Computer software is used.

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## **Graduate Courses (Quantitative Analysis)**

### **QUA 535**

1. What is the main purpose for this course?

The main purpose of this course is to provide basic knowledge about descriptive statistics and inferential statistics for the purpose of making effective business decisions.

2. Course Description:

The course is designed to provide knowledge about the descriptive statistics, sampling distributions, estimations of population parameters, hypothesis testing, and Nonparametric statistical techniques and their applications to business research. The primary objective of this decision is to identify the basic principles of statistical analysis and take advantage of SPSS to do the appropriate statistical analysis.

### **QUA 502**

1. What is the main purpose for this course?

The course starts with a very brief review of the bases such as descriptive statistics, probability and random variables. The main part of the course is devoted to sampling, estimation, hypothesis testing, linear correlation, simple regression, multiple regression, and analysis of variance. The presentation relies upon computer software for most of the needed calculations. Students will use the statistical software package (SPSS).

### **QUA 512**

1. What is the main purpose for this course?

The main purpose of this course is to provide knowledge about using statistical methods in finance and data analysis using SPSS.

## **QUA 520**

1. What is the main purpose for this course?

This course introduces bio statistical methods and applications, covering descriptive statistics, probability, and inferential techniques necessary for appropriate analysis and interpretation of data relevant to health sciences. Students will use the statistical software package (SPSS).

2. Course Description:

This course introduces bio statistical methods and applications, covering descriptive statistics, probability, and inferential techniques necessary for appropriate analysis and interpretation of data relevant to health sciences. Students will use the statistical software package (SPSS).

## **QUA 553**

1. What is the main purpose for this course?

The main purpose for this course is to teach students the most important statistical methods that are used in decision making.

2. Course Description:

This course introduces statistical methods and applications in applied research, covering statistical data, population and random sample, sampling methods, data collection, questionnaire, descriptive statistics, probability, and inferential techniques necessary for appropriate analysis and interpretation of data relevant to business. Students will use the statistical software package.

## **QUA 608**

1. What is the main purpose for this course?

The main purpose of this course is to provide basic knowledge about data and working with data for the purpose of making effective business decisions.

2. Course Description:

The course is designed to provide knowledge about data types and how to work on data sets. The course covers statistical concepts, population and samples, parameters and statistics, sampling designs, statistical field studies, estimation, data measurements, questionnaire design, modifying data, transformation, coding and recoding, merge and split data, graphing and tabulating data, missing data analysis, correlations, testing relationships. Explanatory data analysis. Application on real data using a statistical software such as SPSS.