**Course Syllabus and Learning Objectives**

**ISOMS120 – Business Statistics 1**



**Semester: Fall 2023/2024**

**Instructor: Prof. Shaarawy, Samir**

**Textbook:**  **Essentials of Business Statistics**

  **Edition :** 5th Edition

 **Authors:**  Bruce L. Bowerman, Richard T. O’Connell,

Emily S. Murphree, J. B. Orris

 **Publisher:**  McGraw-Hill - Irwin

**Course Description**

Provides a comprehensive coverage for descriptive statistics that are needed for describing business data.

In addition, introducing the concept of probability and different probability distributions.

**Course Learning Objectives (CLOs)**

**Upon successful completion of the course, students will be able to**:

1. Understand the concept of variables and describe the difference between them.
2. Understand the difference between descriptive statistics and inferential statistics.
3. Compute and interpret the mean, median, mode, range, inter quartile range, and standard deviation.
4. Compute and interpret the weighted mean.
5. Apply the empirical and chebysheve’s rules.
6. Compute and interpret probabilities.
7. Understand the concepts of marginal, conditional, and joint probabilities.
8. Apply Bayes’ rule.
9. Construct the discrete probability distribution and compute its mean and standard deviation.
10. Use binomial, Poison, and Hypergeometric distributions to compute probabilities.
11. Use normal distribution to compute probabilities.

 **Course Contents:**

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| **Chapter 1: An Introduction to Business Statistics**Data, Data Sources, Populations and Samples |  **sections : 1,2,3,5** |
| **Chapter 2: Descriptive Statistics: Tabular and Graphical Methods**Graphically Summarizing Qualitative Data, Graphically Summarizing Quantitative Data, Stem and Leaf Displays, Cross-tabulation Tables |  **sections : 1,2,3,4,5,6** |
| **Chapter 3: Descriptive Statistics: Numerical Methods**Describing Central Tendency, Measures of Variation, Percentiles, Quartiles, and Box plot, Weighted Means and Grouped data, Empirical and Chebysheve’s rules |  **sections : 1,2,3,5** |
| **Chapter 4: Probability**The Concept of Probability, Sample Spaces and Events, Some Elementary Probability Rules, Conditional Probability and Independence, Bayes’ Theorem |  **sections : 1 to 6** |
| **Chapter 5: Discrete Random Variable**Two Types of Random Variables, Discrete Probability Distributions, The Binomial Distribution, The Poisson Distribution, The Hypergeometric Distribution |  **sections : 1,2,3,4,5** |
| **Chapter 6: Continuous Random Variable**Continuous Probability Distributions, The Normal Probability Distribution |  **sections : 1,3** |