**Kuwait University**

**College of Business Administration**

**Quantitative Methods and Information Systems Department**

Course Syllabus

ISOMS220 – Business Statistics 2

Dr. Samir Shaarawy

# Lecture Time and Location

**ISOMS220 / 05 A : Sun Tue Thu, 11:00 AM – 11:50 AM, Room 1009 DG**

**ISOMS220 / 07 A : Sun Tue Thu, 12:00 PM – 12:50 PM, Room 1009 DG**

**ISOMS220 / 09 A : Sun Tue Thu, 2:00 PM – 2:50 PM, Room 1009 DG**

# Contact Information

**Location** :QMIS Department – 2nd Floor – Office No. A-2-1014

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**Office**: 2498-8693

**Office Hours**: **Sun Tue Thu**, **1:15 PM – 2 PM** or by personal appointment

**Social Media**: **Email or teams**

# Teaching Assistant

**Name**: Ms. Narges Akbar

**Location**:QMIS Department – 2nd Floor – Office No.A-2- 1062

**Email:** narges.akbar@ku.edu.kw

**Office Hours**:Mon 9:00 AM – 11:00 AM +12-12:30

Tuesday 9 AM-10 AM+11AM-12PM

Wednesday 10 AM-12:30 PM

Thursday 11 AM-12 PM

**Tutorial**:Monday 11:00 AM – 12PM, Room 1004 D1

Monday 12:30 PM – 1:30 PM, Room 1029 B1

Tuesday 10 AM – 11 AM Room 1006 CG

Wednesday 12:30 PM – 1:30 PM Room 1003 C1

# Course Description

Provides a comprehensive coverage for inferential statistics that are needed for analyzing business data. Topics include confidence intervals, hypothesis testing, correlation, simple and multiple linear regression.

**Prerequisite:** ISOM 120

# Course Learning Objectives (CLOs)

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

1. Understand sampling and sampling distributions
2. Interpret confidence intervals
3. Perform hypothesis testing
4. Perform statistical inference based on two samples
5. Understand experimental design
6. Apply multiple regression analysis to solve business problems

# CLO Mapping to CBA Skill Based Competency Goals[[1]](#footnote-2)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CLO | Competency Goal | | | | |
| Analytical | Communication | Information Technology | Business Ethics |
| 1 | I |  |  |  |
| 2 | I |  |  |  |
| 3 | I |  |  |  |
| 4 | I |  |  |  |
| 5 | I |  |  |  |
| 6 | I |  |  |  |

# Type of Emphases:

* **(I)ntroduce:** Students will be introduced to the skill and their grasp of it assessed in the course.
* **(A)pply:** The course will not cover the skill. Students should have a high-level grasp of the skill and are required to apply it in the course.
* **(R)einforce:** Students should have an introductory-level grasp of the skill and the course will improve their mastery to a higher level.

# Required Material

**Textbook**: Bruce L. Bowerman, P., Murphree, E. S., Orris, J. B., & Richard T. O’Connell, P. (2014). *Essentials of Business Statistics* (5th ed.). McGraw-Hill Education.

**Additional Material**: Other material is available on Electronic Blackboard and personal handouts+

**E-Learning System**: Nine videos cover all material with solved exercises.

# Course Requirements and Policies

* **Individual Assignments:** There are total 8 non submitted individual assignments.
* **In-Class Tests:** There are total 3 in-class short quizzes and 2 midterm-exams. These quizzes and exams are scheduled in the syllabus sheet.
* **Participation:** The quality of our classroom discussions in large part depends on you and your preparation for class. Participation should include, among other things, (1) presenting case facts, (2) defining the problem, (3) exploring different alternatives, (4) persuasive, thoughtful, integrated analysis supported by the data given in the case, (5) Implementation plan for proposed actions. "Air time" is not nearly as important as meaningful analysis and recommendations supported by data. Remember, for most of these cases, there is no right or wrong answer.
* **Class Preparation – Readings, Videos, and Online Quizzes:** It is very important that students are prepared for each class period. For each class there will be a required reading (case or chapter course pack) or video. To ensure comprehension, a short, 15-minute quiz on the reading or video will need to be completed on **Blackboard** prior to **9:00 AM** **each class day**.
* **Attendance and Participation:** Every student in this course must abide by the Kuwait University Policy on Attendance (published in the Student Guide, Chapter 3, Section 13). A copy of the student guide can be accessed online on:

http://www.kuniv.edu/cs/groups/ku/documents/ku\_content/kuw055940.pdf

* This course has a significant seminar component and class participation is critical to the learning experience. Participation will be assessed in each class period. Your class participation and attendance will both contribute to your score of in-class performance.
* **Cheating and Plagiarism:** Every student in this course must abide by the Kuwait University Policy on Cheating and Plagiarism (published in the Student Guide, Chapter 3, Section 2). A copy of the student guide can be accessed online on:

http://www.kuniv.edu/cs/groups/ku/documents/ku\_content/kuw055940.pdf

Please carefully note all sources and assistance when you turn in your work. Under no circumstances should you take credit for work that is not yours. You should neither receive nor give any unauthorized assistance on any deliverable. If you have any questions about what constitutes “unauthorized assistance” please email me before the deliverable is submitted.

* **Writing Style:** Students must refer to MLA writing style for their assignments and report writing. Refer to the English Language Center for help.

# Grading

The scores in this course will be the weighted average of the following items:

|  |  |
| --- | --- |
| Weight | Description |
| 20% | 3 short quizzes |
| 20% | Mid-term exam 1 |
| 20% | Mid-term exam 2 |
| 40% | Final exam |
|  |  |
| 100% | TOTAL |

# Grade Distribution

|  |  |
| --- | --- |
| Grade | Range |
| A | ≥ 95 |
| A- | ≥ 90 and < 95 |
| B+ | ≥ 87 and < 90 |
| B | ≥ 83 and < 87 |
| B- | ≥ 80 and < 83 |
| C+ | ≥ 77 and < 80 |
| C | ≥ 73 and < 77 |
| C- | ≥ 70 and < 73 |
| D+ | ≥ 65 and < 70 |
| D | ≥ 60 and < 65 |
| F | < 60 |

# Course Outline

|  |  |  |
| --- | --- | --- |
| Title | Topics | Weeks |
| (Review) Normal Distribution and Sampling Distribution | Area under normal distribution, Area under normal distribution  Area under normal distribution, sampling distribution for  central limit theorem | Week 1 |
| Sampling Distribution and estimation | Statistics, estimator, estimate, Sampling dist. For P, CI for µ  CI for µ, Interval length, sample size determination 1/2 | Week 2 |
| estimation and Hypothesis Testing | CI for µ when σ is unknown,  CI for µ when σ is unknown, large sample, CI for P, sample size determination Introduction to Hypothesis Testing | Week 3 |
| Hypothesis Testing | Introduction to Hypothesis Testing  Hypothesis testing for µ when σ in known,  Testing using P-value and CI | Week 4 |
| Hypothesis Testing and statistical inference for two populations | Hypothesis testing for µ when σ in unknown, Testing using P-value and CI, Hypothesis testing for P, HT for two pop. Means: independent Sample σ’s are known, HT for two pop. Means: independent Sample σ’s are known, HT for two pop. Means: independent Sample σ’s are unknown and σ’s are equal | Week 5 |
| statistical inference for two populations | HT for two pop. Means: independent. σ’s are unknown and σ’s are equal, HT for two pop. Means: indep. σ’s are unknown and σ’s are not equal, HT for 2 σ’s or σ2, Dependent sample (paired experiment) | Week 6 |
| statistical inference for two populations | HT and CI for Dependent sample (paired experiment), HT and CI for population proportion | Week 7 |
| Analysis of Variance | Introduction to HT for more than 2 pop. Means  HT for more than 2 pop. means | Week 8 |
| Test of independence and correlation | Chi Squared test of independence, Simple Linear Regression and correlation - introduction | Week 9 |
| Simple Regression Analysis | Linear correlation coefficient, Simple linear Regression estimation | Week 10 |
| model validation for Simple Regression | R2, overall model validation, Test for the model parameters, CI FOR β’s, Model estimation and validation: complete Minitab example | Weeks 11 and 12 |
| Multiple Regression Analysis | Multiple Regression: introduction, model specification, complete Minitab example | Week 13 |
| Review |  | Week 14 |

# Important Dates

|  |  |
| --- | --- |
| Date | Event |
| 29-3- 2022 | Quiz 1 |
| 12-4-2022 | Midterm-Exame1 |
| 26-4- 2022 | Quiz 2 |
| 10-5- 2022 | Quiz 3 |
| 24-5-2022 | Midterm-Exame2 |
| 7-6-2022 | Final Exam |

# CBA Competency Goals

1. **Analytical Competency:** A CBA graduate will be able to use analytical skills to solve business problems and make a well-supported business decision.

**Student Learning Objectives:**

* 1. Use appropriate analytical techniques to solve a given business problem.
  2. Critically evaluate multiple solutions to a business problem.
  3. Make well-supported business decisions.

1. **Communication Competency:** A CBA graduate will be able to communicate effectively in a wide variety of business settings.

**Student Learning Objectives:**

* 1. Deliver clear, concise, and audience-centered presentations.
  2. Write clear, concise, and audience-centered business documents.

1. **Information Technology Competency:** A CBA graduate will be able to utilize Information Technology for the completion of business tasks.

**Student Learning Objectives:**

* 1. Use data-processing tools to analyze or solve business problems.

1. **Ethical Competency:** A CBA graduate will be able to recognize ethical issues present in business environment, analyze the tradeoffs between different ethical perspectives, and make a well-supported ethical decision.

**Student Learning Objectives:**

* 1. Identify the ethical dimensions of a business decision.
  2. Recognize and analyze the tradeoffs created by application of competing ethical perspectives.
  3. Formulate and defend a well-supported recommendation for the resolution of an ethical issue.

1. **General Business Knowledge:** A CBA graduate will be able to demonstrate a basic understanding of the main business disciplines’ concepts and theories.

**Student Learning Objectives:**

* 1. Acquire a fundamental understanding of knowledge from the main business disciplines (e.g. finance, accounting, marketing, and management information systems, among others).

1. CBA Competency Goals can be found at the end of this document [↑](#footnote-ref-2)