**The University of Jordan Faculty of Engineering and Technology Industrial Engineering Department First Semester 2014/2015**

**Course Title and code:** Applied Statistics **IE 0906702**

**Learning/Teaching**

**Methods:**

Lectures/Problem solving sessions.

Case studies. Homeworks

Reading assignments.

**Assessment Methods:** Home works, and Short Exams

First and Second Exams

Final exam

**Providing Department:** Industrial Engineering **Instructor:** Dr. Abbas Al-Refaie **Phone:** 22942

**Email:**  [abbas.alrefai@ju.edu.jo](mailto:abbas.alrefai@ju.edu.jo)

**Class time:**

**Class Place:**

Section 1: Tuesday. : 3:30-6:30

IE. 101

**Office Hours:** Tuesday : 3:30-06:30

**Course Description:**

3 Credit hours (3. hours lecture each week). Advanced topics on probability theory, theory of statistical inference, estimation, sampling distribution, tests of hypothesis, linear and nonlinear regression. Analysis of variance, design and analysis of experiments, and case studies.

**Course Prerequisite:** --

**Course Objectives/ Student Learning Outcomes:**

1. Explain in simple terms, the concepts of basic statistics experimental design. (SLO7, SLO10)

2. Understand and use the probability theory and regression methods. (SLO5, SLO8, IE1)

3. Demonstrate the ability to use the linear and nonlinear regression models. (SLO1, SLO2)

4. Demonstrate the ability to design, use, and interpret experimental results. (SLO1, SLO2, SLO3, IE1)

5. Demonstrate the ability to design, use, and interpret experimental results with blocking. (SLO1, SLO2, SLO3, IE1)

6. Perform analysis of variance. (SLO1, SLO2, SLO3, IE1)

7. Demonstrate the ability to design, use, and interpret experimental results with Two-level

Factorial Designs. (SLO1, SLO2, SLO3, IE1)

8. Demonstrate the ability to use software in cases and applications. (SLO11)

9. Demonstrate Ability to conduct a comprehensive design and analysis in real life applications

(SLO4, SLO7, SLO8, IE1).

**Text Books and References:**

1. D. Montgomery (2009). ***Design and Analysis of Experiments***. 7th Edition, John Wiley & Sons.

2. D. Montgomery and G. Runger\* (2007). ***Applied Statistics and Probability for Engineers***.

6th Edition, John Wiley & Sons.

3. Instructor's notes

**Grading:**

**Percentage**

**1** Class quizzes, field project, assignments. 10%

**2** First exam 25% Second Exam 25 %

**3** Final Examination, Comprehensive 40% Total 100%

**Tentative course outline:**

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| **Chapter** | **Topics** |
| **Chapter 1** | Basic Statistical Methods |
| **Chapter 1** | Simple Linear Regression and Correlation |
| **Chapter 3** | Multiple Linear Regression. |
| **Chapter 5** | Analysis of Variance |
| **Chapter 6** | Experiments with Blocking |
| **Chapter 7** | Factorial Experiments |
| **Chapter 8** | Two-level Factorial Designs |
| **Chapter 9** | Blocking and Confounding Systems for  Two-level factorials |
| **Chapter 10** | Two-level Fractional Designs |

**Important Notes:**

a. All course material, handouts, assignments will be posted on UJ-learning website.

b. Students are responsible for continuously referring to the sight for updated material. c. Do not hesitate to ask questions on any material you do not fully understand

d. Students are required to bring a notebook and take notes in all classes.

e. Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class.

f. Discuss the assignments among yourselves. This is helpful to the learning process.

g. Don’t Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an “F” for the course. There will be no exceptions.

h. All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused

i. There will be a number of home works and unannounced quizzes during the semester.

Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works.

j. Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.