



Course Syllabus
According to JORDAN National Qualification
Framework (JNQF)

Course Name: Engineering Statistics

Course Number: 04032212

General Course Information:

Course title	Engineering Statistics
Course number	04032212
Credit hours	Three Credit hours (Theory)
Education type	[Face-to-Face]
Prerequisites/corequisites	Calculus 2 (01102182)
Academic Program	Civil engineering
Program code	403
Faculty	Engineering
Department	Civil engineering
Level of course	3 rd year
Academic year /semester	Summer Semester 2021-2022
Awarded qualification	B.Sc
Other department(s) involved in teaching the course	Non
Language of instruction	English
Date of production/revision	2806/2022

Course Coordinator:

Coordinator's name	Dr. Reema Al-dalain
Office No	-
Office Phone extension number	-
Office Hours	Sun, Tue, Thu (9:00-10:00) and (11:00-12:00) Mon, Wed (09:30-12:30)
Email	

Other Instructors:

Instructor name	
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description (English/Arabic):

English	Design of experiments, sampling techniques, basic probability, inferential and descriptive statistics, Normal distribution, confidence intervals, hypothesis testing, correlation and linear regression
Arabic	الإحصاء الوصفي، تقدير الفترة، اختبار الفرضيات، فترات الثقة، الارتباط والتراجع، تحليل التباين، التصميم الإحصائي للتجارب.

Textbook: Author(s), Title, Publisher, Edition, Year, Book website.

Learson and Faber “Elementary of statistics” 4 th edition, Pearson 2012
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References: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. Mont Gomery and Ruuger “ applied statistics and probabilities for engineering 6th edition, willey 2011

Course Educational Objectives (CEOs):

1.	Understand the basic concepts of Engineering statistics and statically methods
2.	Compute mean, mode, standard deviation and variance
3.	Investigation and analysis of data
4.	Describe the correlation between different variables
5.	Understand test hypothesis and confidence engineering data

Intended Learning Outcomes (ILO's):

1.	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	Descriptors**
2. A	Knowledge and Understanding:				
3. A1	Explain clearly statistics concept and describe sampling methods and sampling distribution	1,2,3	6	4	S
4. A2	Apply regression analysis and describe the relation between variables	4	6	4	S
5. A3					
6. B	Intellectual skills:				
7. B1	Ability to compute frequency distribution, and to use the empirical rule.				
8. B2					
9. B3					
10. C	Subject specific skills:				
11. C1	Draw histograms, polygons sketches and conduct data tables, charts and graphs	3	1	2	K
12. C2	Construct and develop confidence intervals for independent variables	5	1	3	K
13. C3					
14. C4					
15. D	Transferable skills:				
16. D1					
17. D2					
18. D3					

***Bloom Taxonomy Levels**

Level #	1	2	3	4	5	6
Level Name	Knowledge	Comprehension	Application	Analysis	Evaluation	Synthesis

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (CE) program will demonstrate:		Descriptors**		
		K	S	C
1.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	✓		
2.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.			✓
3.	An ability to communicate effectively with a range of audiences.		✓	
4.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.			✓
5.	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.		✓	
6.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.		✓	
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	✓		✓

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule

✓ Face to Face

Week	First Hour + Second Hour + Third Hour	Ach. ILOs	Ach. PLOs	Descriptors*
1	Introduction to course, overview and requirements	A1	6	S
2	Types of variables; data collection and data studying types	A1&B1	6	S
3	Examining numerical data, graphical methods; histograms and other graphs	C1& B1	1	K
4	Numerical methods: average, standard deviation, etc	A1& B1	6	S
5	Normal distribution	A1	6	S
6	Normal distribution	A1	6	S

7	Normal distribution	A1	6	S
8	Binomial Distribution	A1	6	S
9	Binomial Distribution	A1	6	S
10	Confidence Intervals	C2	1	K
11	Confidence Intervals	A1	6	S
12	Correlation	A2	6	S
13	Regression	A2	6	S
Final Exam				

* K: Knowledge, S: Skills, C: Competency

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Interactive videos
- Practice Labs
- Discussion Forums
- Quizzes
- Other Interactive online activities
- Reports

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **20%**
- Midterm **30%**
- Final Exam **50%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the IU E-Learning Platform at:
<https://elearn.iu.edu.jo/course/view.php?id=2105>
- [E-learning plan](#)
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools implemented in the course:

- ✓ Final Exam
- ✓ Midterm Exam
- ✓ Homework
- ✓ Discussion Forums
- ✓ Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching
- Others: Quiz

Responsible Persons and their Signatures:

Course Coordinator	Dr. Reema Al-dalain.	Completed Date	06/ 09 / 2022
		Signature	
Received by (Department Head)	Dr. Ibrahim Varooqa	Received Date	07/ 09 / 2022
		Signature	