CIHAN UNIVERSITY-SULAIMANIYA

Course Outline

2025-2026

MODULE DESCRIPTION FORM

<table>
<tr><td colspan="4" align="center">Module Information</td></tr>
<tr><td>Module Title</td><td colspan="3">Quantitative Methods</td></tr>
<tr><td>Module Type</td><td colspan="2">Degree</td><td rowspan="3">☐ Theory
☐ Lecture
☐ Lab
☐ Tutorial
☐ Practical</td></tr>
<tr><td>Module Code</td><td colspan="2"></td></tr>
<tr><td>Language</td><td colspan="2">English</td></tr>
<tr><td colspan="3">ECTS Credits</td><td>☐ Seminar
☐ Report
☐ Extra activity</td></tr>
<tr><td colspan="2">Module Level</td><td></td><td>Semester of Delivery   1st Semester</td></tr>
</table>

Module Level			**Semester of Delivery**	1st Semester

<table>
<tr><td>Administering Department</td><td>Business Administration</td><td>College</td><td>Administration and Finance</td></tr>
<tr><td>Lecturer</td><td colspan="2">Saya jamal Aziz</td><td></td></tr>
<tr><td>Academic Title</td><td>Lecturer</td><td>Qualification</td><td>MSc. Statistics</td></tr>
<tr><td>Module Tutor</td><td>Saya jamal Aziz</td><td>e-mail</td><td>Saya.jamal@sulicihan.edu.krd</td></tr>
<tr><td>Peer Reviewer Name</td><td></td><td>e-mail</td><td></td></tr>
<tr><td>Scientific Committee Approval Date</td><td></td><td>Version Number</td><td></td></tr>
<tr><td>Cycle of Study</td><td>Bachelor</td><td>Form of Education</td><td>Full time</td></tr>
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<tr><td colspan="4" align="center">Relation with other Modules</td></tr>
<tr><td>Prerequisite module</td><td></td><td>Semester</td><td></td></tr>
<tr><td>Co-requisites module</td><td></td><td>Semester</td><td></td></tr>
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Cihan University Sulaimaniya

College of Business and financial Sciences

Department: Business Administration
Discipline: Quantitative Methods
Stage: 3

Total Contact Hours:	42
Total Self Study Hours:	66
Total No. Hours:	108
ECTS:	4

No. of Weeks	Contact Hours					Self-Study					
	Theoretical	Practical	Lab	Project	Visit	Quiz	Reading	Assignment	Report	Midterm Exam.	Final Exam.
1st Week (Registration)	2	1	-	-	-	-	2	-	-	-	-
2nd Week	2	1					2				
3rd Week	2	1					2	2			
4th Week	2	1				2		1			
5th Week	2	1					2				
6th Week	2	1						2	4		
7th Week	2	1				2	2				
8th Week	2	1					2			12	22
9th Week	2	1					2	2			
10th Week	2	1									
11th Week	2	1					2	1			
12th Week	2	1					2	2			
13th Week	2	1				2	2				
14th Week	2	1					2				
15th Week											
16th Week (Final Exam)											
TOTAL	**28**	**14**				**6**	**22**	**10**	**4**	**12**	**22**

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	CH-One Basics of Quantitative Methods
Week 2	Problem Solving Decision Making Types of Decisions Single-criterion decision problems Multi-criteria decision problems
Week 3	Quantitative Analysis and Decision making Quantitative Analysis Model Development Mathematical models.
Week 4	CH-Two Linear Programming
Week 5	-What is LP -Objective Function and Constructions -Maximize and Minimize Objective function -Formulation of linear programming model -Examples of applications of linear programming
Week 6	CH-Three Graphical Solution of Two-Variables L.P. Problems
Week 7	Graphical method. -Steps solution using the graphical method. Types of solutions in graphical method. -Examples
Week 8	**Mid-Term Exam**
Week 9	CH-Four Simplex Method
Week 10	Simplex method. -Basic variables. -Non- Basic variables.
Week 11	Slack, surplus & Artificial variables. The steps of the simplex method. -Examples -problems
Week 12	CH-Five Big-M Method
Week 13	Artificial Variables, Big M Method ,Examples
Week 14	Two-Phase Method, Examples
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week8	
Week9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	The main objective of this course is to give student a good theoretical and practical knowledge of quantitative analysis methods. The student will take courses from a variety of technique that focus extensively on statistical methodology, mathematical modeling, and computer implementation issues. The student will be able to solve and interpret correctly the solutions of a problems and recognize the situations where QM techniques can be used as decision making tools and to interpret correctly the conclusions which can be derived using these techniques.

Module Learning Outcomes	Concepts covered in this course include Linear Programming, Artificial Variable Technique, Graphical method , Simplex Method . At the end of this course the student will: - 1-understand what is meant of problem solving and decision making and quantitative methods. 2. understand what is meant by quantitative analysis methods and how to formulate linear programming problems. 3. learn how to construct a model to represent the systems. 4 learn how to derive a solution from the model and put the solution to work. 5. learn how to use a graphical method to solve two-variable L.P. Problems. 6. learn how to use a simple method to solve two-variable L.P. Problems an more than two-variables problems.

Learning and Teaching Strategies

Strategies	Whiteboard, whiteboard maker, data show, course note. Assessment scheme.

Module Evaluation

Assessment Types		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5/3	15	4,7,13	5/3
	Assignments	2/5	10	6,12	2/5
	Projects / Lab.	1/5	5	6	1/5
	Report				
Summative assessment	Midterm Exam	2hr	20	8	2hr
	Final Exam	3hr	50	15	3hr
Total assessment			100% (100 Marks)		

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Lectures binder	
Recommended Texts	**Textbooks:** Hamdy, A. Taha; Operations Research and Introduction, 8th Edition, Pearson Education Inc., 2007. -Handy A. Taha, An Introduction to Operation Research, University of Arkansas, Fayettiville. 8th Edition. Pearson Education Inc. London (2003).	**Web**
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A - Excellent**	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX – Fail**	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Approved by Head of the Branch / Department	
Signature	
Date	*4/9/2025*

Name	*Lecturer .Saya Jamal Aziz*

Approved by Curriculum Development Committee and Bologna Process Committee	
Signature	
Date	
Name	