Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide Master of Statistics

2025-2026

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Apparatus

Department of Quality Assurance and Academic Accreditation

Academic Program Description for the Department of Statistics - Master's degree in Statistics

For the Academic Year 2025-2026

University: University of Wasit

College / Institute: College of Administration and Economics

Department: Department of Statistics

Program Name: Master of Science in Statistics

Date of Description Preparation: 21/9/2025

Date of File Completion: 21/9/2025

signature:

Name of the Head of Department:

Asst. Prof. Dr. Ali Hameed Yousif

Date: 21/9/2025

signature:

Name of Scientific Assistant:

Prof. Dr. Hussain Shnawa Majeed

Date: 21/9/2025

رئاسة جامعة واسط
كلية الادارة والاقتصاد
شعبة ضمان الجودة

The file was reviewed by the University Quality Assurance and Performance Division

Name of the Director of the Quality Assurance and University Performance Division:

Lecture. Dr. Saif Al-Din Nasser Khazal

Date:

أ.د. أحمد عبد الله سلمان الوائلي
العميد

Dean's approval

Prof. Dr. Ahmed Abdallah Salman

Date: 21/9/2025

Prof.Dr.
Ahmed Abdullah Salman
Dean

1. Program Vision

The Department of Statistics aims to prepare qualified graduates in the field of statistical sciences to work in government institutions and to apply their specialized knowledge in scientific and practical fields.

2. Program Mission

The Department seeks to prepare and graduate scientifically and academically qualified leaders and professionals in the field of statistical sciences, capable of contributing to the advancement of knowledge through scientific research and statistical applications in the service of society across various scientific and humanities disciplines. This is achieved through data analysis and the provision of statistical expertise, as well as through developing and enhancing students' scientific and intellectual capabilities. The Department also emphasizes the use of statistical software for data analysis to support forecasting, the development of strategic plans, and informed decision-making.

3. Program Objectives

1. To prepare and qualify specialized graduates in statistical work, equipping them with the knowledge and skills necessary to contribute effectively to development programs in both the public and private sectors.
2. To enable students to apply the scientific method in determining the appropriate sample size and sampling techniques, as well as in collecting and presenting data relevant to research studies.
3. To develop students' ability to construct statistical indicators, analyze results, and test statistical hypotheses in various types of studies.
4. To develop students' proficiency in using computers, information technology, and statistical software packages.
5. To enhance students' ability to design and conduct scientific experiments and analyze their results.
6. To promote and integrate e-learning in the field of statistical sciences.
7. To employ modern teaching methods and technologies in teaching statistical sciences.

4. Program Accreditation

The program is making every possible effort to obtain program accreditation. Subsequently, the requirements of the accreditation process will be fully addressed in order to enhance the ranking and academic standing of our program.

5. Other external influences

Currently, there is no accreditation in place. The information will be updated upon obtaining program accreditation.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				Basic
College Requirements				Basic
Department Requirements	13	27	%96	Basic
Department Requirements	1	1	%4	option
Other	None			

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
Master's Degree / First Semester 2025/2026		Mathematical Probability and Statistics	3	
		English Language	1	
		Linear Models	3	
		Research Methodology and Ethics	2	
		Time Series	2	
		Multivariate Analysis	2	
		Biostatistics	2	
		Nonparametric Statistics	2	

Master's Degree / second Semester 2025/2026		**Statistical Inference**	**2**	
		Stochastic Processes	**2**	
		Design and Analysis of Experiments	**3**	
		Reliability	**2**	
		MATLAB	**2**	

8. Expected learning outcomes of the program

Knowledge

1. **Identify the sources of data and understand various methods of data collection.**
2. **Identify and understand different sampling methods and the theory of sampling.**
3. **Enable students to formulate and summarize data in order to develop statistical plans for community development across various fields.**

Skills

1. **Develop the ability to address real-world statistical problems and make appropriate decisions.**
2. **Equip students with the skills required to conduct opinion surveys and analyze their results.**
3. **Enable students to determine the appropriate statistical methodology for data collection.**

Ethics

1. **Develop awareness of the importance of maintaining professional ethics and confidentiality in the workplace.**
2. **Foster students' respect for human dignity.**
3. **Develop a culture of active listening and constructive dialogue.**
4. **Foster positive attitudes and orientations toward studying in the Department of Statistics.**

9. Teaching and Learning Strategies

1. Teaching and learning strategies and methods adopted in the implementation of the program in general. Integrate computer applications

and learning activities with the curriculum requirements through practical and applied approaches.
2. Prepare master's theses in various fields of statistics from both analytical and applied perspectives.

10.Evaluation methods

Weekly, daily, and monthly exams; preparation of scientific reports; and the end-of-course exam.

11.Faculty

Faculty Members

Academic Rank	Specialization		Number of the teaching staff	
	General	Special	Staff	Lecturer
1- Prof. Abbas Lafta Kneher	Statistics	Applied Statistics	Staff	
2- Prof. Bassem Shaliba Muslim	Statistics	Applied Statistics	Staff	
3- saad sabir mohammed	Statistics	Applied Statistics	Staff	
4-. Asst. Prof. Tareq Azeez Saleh	Statistics	Applied Statistics	Staff	
5- Asst. Prof. Ahmed Mahdi Saleh	Statistics	Applied Statistics	Staff	

6- Asst. Prof. Ali Hameed Yousif	Statistics	Applied Statistics	Staff	
7- Asst. Prof. Wafaa Jaafer Husain	Statistics	Applied Statistics	Staff	
8- Asst. Prof. Jalil Talab Abdullah	Statistics	Applied Statistics	Staff	

Professional Development

Professional development of faculty members

1. Promote the professional development of faculty members through their participation in training courses on statistical software and applications.
2. Encourage faculty members to participate in scientific conferences held both within and outside Iraq.

12. Acceptance Criterion

A minimum undergraduate (Bachelor's) degree average of 65%, in addition to passing the competitive examination.

13. The most important sources of information about the program

Recent References and Modern Statistical Software

14. Program Development Plan

1. Establish academic partnerships and twinning arrangements with counterpart colleges and academic institutions outside Iraq.
2. Utilize up-to-date and contemporary academic references.
3. Integrate the use of interactive smart boards into the teaching and learning process.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Master's Degree / First Semester 2025/2026	Mathematical Probability and Statistics		Basic	√				√				√			
	English Language		Basic	√				√				√			
	Linear Models		Basic	√				√				√			
	Research Methodology and Ethics		Basic	√				√				√			
	Time Series		Basic	√				√				√			
	Multivariate Analysis		Basic	√				√				√			
	Biostatistics		Basic	√				√				√			
	Nonparametric Statistics		Basic	√				√				√			

Master's Degree / Second Semester 2025/2026	**Statistical Inference**		**Basic**	√				√				√			
	Stochastic Processes		**Basic**	√				√				√			
	Design and Analysis of Experiments		**Basic**	√				√				√			
	Reliability		**Basic**	√				√				√			
	MATLAB		**Basic**	√				√				√			

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Model and description of the decision

Description of the Rapporteur

Course Description Form

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program
description

Abbas Lafa Knehar

1- educational institute	Wasit university
2- Department	Statistics
3- Course title	**Probability and mathematical statistics**
4-Forms of attendance	Classroom lectures
5-Course/ year	1st course\ 2025-2026
6-Total hours	30
7-Date of this form	21/9/2025
8-Objectives of the decision	
After completing the course, the university course must be on • Account for some of its operations.	

• Dealing with discrete, continuous, and mixed randomness with probability ratios and their expectations.

• Calculating the conditional expectation effect, its characteristics, means, variances, central and eccentric moments, and the moment generating function. It also deals with conditional expectation and conditional variance as random variables and how to find their distributions.

• Learn how to find the probability distribution of some functions of random variables using the moment generating function, CDF, transformations and ranking statistics.

9- Learning outcomes and methods of teaching, learning and evaluation

B- Cognitive objectives

• Know all the indicators of the material.

• Knowledge of the tests used and the main estimation methods.

B - The skills objectives of the course

• The ability to determine appropriate statistical methods for estimation

• The ability to know the types of data that the student deals with and then he can choose the appropriate distribution

Teaching and learning methods

• Use the lecture and discussion method.

• Conduct discussions about the case study

• Use ready-made applications specific to the subject

Evaluation methods

• Students' performance, responsibility, and expectations of them while teaching the course.

• Discussing various scientific concepts and methods, along with a variety of cases and applications related to the course, with the subject professor and their colleagues.

• Discussing exercises and applications based on the followed curriculum and comparing it practically. • Conducting several exams for evaluation purposes. • Submission of a case study by the student.
C- Thinking skills • The ability to choose the appropriate method to solve the problem • The ability to know the type of data • The ability to know the indicators related to and according to the cases studied
Teaching and learning methods
Discussion • Analyze the results • Duties
General and transferable skills (other skills related to employability and personal development). • Use the Internet and try to use ready-made programs. • Solve intense exercises.

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
		Introduction Point estimation		3	First
		Estimaton Evaluating estimators		3	Second
		Unbiased ness Meansquare error consistency		3	Third
		Sufficiency Factorization criterion		3	Fourth
		Rao-blackwell theorem completeness		3	Fifth
		Efficiency Minimum variance bound estimation		3	Sixth
		exam		3	VII.
		Method of estimation Method of moments		3	VIII.
		Maximum likelihood estimation(mle) Properties of MLE		3	Ninth
		Bayesian estimation and minimax estimation		3	Tenth
		Interval estimation Confidence interval for M		3	Eleventh
		Confidence interval for the difference of mean		3	Twelfth
		Testing of hypothes Uniformly most powerfull testes		3	Thirteenth
		Exam		3	Fourteenth
		The sequential probability raiatest		3	Fifteenth

		Minimax and Bayesian tests			

11-Infrastructure	
• The goal of inferential statistics in scientific research is to analyze data and create results using limited results to reach conclusions about the total population. A prelude to inferential statistics to provide strong, consistent evidence for theory and assumptions in research. Specifying inferential statistics contributes to the validity of hypotheses and their results for exclusive populations.	Required readings: ▪ Basic texts ▪ Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Description Template

This course description provides a concise summary of the most important characteristics of the course and the expected learning outcomes for the student to achieve, indicating whether they have made the most of the available learning opportunities. It is necessary to link it with the program description.

Assistant Prof. Nejoom Taher

1- educational institute	Wasit university
2- Department	Statistics
3- Course title	English
4-Forms of attendance	Classroom lectures
5-Course/ year	1st course\ 2025-2026
6-Total hours	30
7-Date of this form	21/9/2025
3- Course goals	
This dynamic course is designed to enhance the proficiency in English through a structured approach that encompasses key language skills: understanding tenses, Reading comprehension, translation, speaking fluency, and writing clarity.	
9-Learning outcomes, teaching and learning methods, and assessment	
A- Cognitive Objectives	Dive deep into the world of English tenses , exploring their forms, and uses, develop reading , writing and speaking skills

B-Teaching and Learning Methods	Engaging in interactive exercises that not only clarify the grammatical mechanics- but also provide context for real-world applications --Analyzing a variety of articles from different genres, enhancing both comprehension and vocabulary
C-Assessment Methods	The grade is distributed based on several factors the most ,daily participation ,important of which are the monthly exams .and daily tests ,completion of daily assignments
D-Thinking Skills	The student's ability to form sentences, the ability to speak during classroom activities, and the ability to write compositions during class
E-Teaching and Learning Methods	Solving exercises related to grammar in class, doing homework, and participating in class activities
F-General and transferable skills (other skills related to employability and personal development).	The student ability to research using the internet for articles and studies the student ,Additionally .in English and translate them is noteworthy ,such as the presentation software ,utilizes Microsoft applications .effectively

10-**Course Structure**					
Evaluation method	**Teaching method**	**Unit / Course or Subject Name**	**Required Learning Outcomes**	**hours**	**Week**
		Introduction to the class and explaining the simple present tense	Understanding present simple	3	1st
		Simple present exercises	Able to solve present simple exercises	3	2nd
		Writing a paragraph using simple present tense	Able to write using simple present tense	3	3rd
		Explaining simple past	Understanding simple past	3	4th
		Simple past exercises	Able to solve	3	5th

			simple past exercise		
		Discussing homework	Contributing in the discussions	3	6th
		Writing a paragraph using simple past tense	Writing a using simple past tense	3	7th
		Articles related to statistics	Able to read faster	3	8th
		Examination -1	/	3	9th
		Reading and translating articles	Understanding new vocabulery	3	10th
		statistical Explaining vocabulary	Enhancing vocabulary along	3	11th

			with reading		
		Group speaking activities	Able to speak to others	3	12th
		Reading and translating articles	Able to read and explain to the class	3	13th
		Group speaking activities	Able to communicate with the peers	3	14th
		Examination-2	/	3	15th

10- Infrastructure	
Required sources	Internet sources Headway book
Special requirements (including, for example, workshops, periodicals, software, and websites)	Presenting presentations of groups to the class using information from the internet
Social services (including, for example, guest lectures, vocational training, and field studies)	/

Model and description of the decision

Description of the Rapporteur

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Ali Hameed Yousif

1- educational institute	Wasit university
2- Department	Statistics
3- Course title	**Linear models**
4-Forms of attendance	Classroom lectures
5-Course/ year	1st course\ 2025-2026
6-Total hours	30
7-Date of this form	21/9/2025
8-Objectives of the decision	
Definition of the basics of model building, its types, how to find the distribution of quadratic formulas, as well as the topic of estimating model parameters and testing them	

9- Learning outcomes, teaching, learning and assessment methods

A- Cognitive objectives • The ability to collect and analyze data. • The ability to work within groups with different processors to achieve specific goals. • Understanding statistical theory, estimation and prediction.
B - Course specific skill objectives • Employing and using statistical tools. • Using computer programs. • Making decisions based on scientific foundations.
Teaching and learning methods
• Delivering
Evaluation methods
• Periodic and semester exams
C- Thinking skills • Read and understand the exercise or problem. • Determine the appropriate tool for analysis. • Make a decision.
Teaching and learning methods

Providing exercises for the student to use thinking skills to find solutions.
D - General and transferable skills (other skills related to employability and personal development). • Use of libraries • Follow-up of the development of universities with similar specializations • Use of modern technologies in teaching and learning

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
discussion	lecture	Matrix algebra		3	First
		Quadratic form		3	Second
		Characteristic roots and vectors		3	Third
		c-inverse and g-inverse		3	Fourth
		Distribution of Q.F		3	Fifth
		Distribution of Q.F		3	Sixth
		General linear mode		3	VII.
		Hypothesis testing in GLM		3	VIII.
		Hypothesis testing in GLM		3	Ninth
		Computing techniques for fitting a specified regression		3	Tenth
		Computing techniques for fitting a specified regression		3	Eleventh
		Analysis of Variance		3	Twelfth
		Application of GLM		3	Thirteenth
		Model of less than full rank		3	Fourteenth
		Exam.		3	Fifteenth

11-Infrastructure	
1- F.A.Graybil "Theory and application of linear model" 2- S.R.Searle "Linear model" 3- G.A.Graybil "Linear regresstion analysis	Required readings: Basic texts Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)

	Social services (including, for example, guest lectures, vocational training, and field studies)

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program
description

Asst. Prof. Jalil Talab Abdullah

University of Wasit / College of Administration and Economics	-1 Educational institution
Statistics Department	2University Department Center
Stochastic processes	3- Course name/code
Lectures	4- Available forms of attendance
Course Two 2026 -2025/	5- Semester / Year
30	6- Number of study hours (total)
18/5/2026	7- Date of preparation of this description
8- Course objectives	
Based on the complete curriculum of the study, the student will be able to understand everything related to the vocabulary of the subject of research methodologies and ethics, from definitions to a detailed presentation of the topics of the subject	

-9 Learning outcomes, teaching and learning methods and assessment

A- Cognitive objectives

• Ability to grasp the vocabulary of the course material

Constructive interaction, understanding, and comprehension of weekly lectures•

Teaching and learning methods - B

Delivering in-person lectures using detailed explanations and other introductory methods on an electronic projector, along with real-life examples that can be used, while also requiring students to prepare research papers on various topics.

Evaluation methods

The grade out of 100 is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc

- **C- Thinking skills**

• Thorough preparation for the weekly lecture

• Students individually explain the lecture topics, with assistance from other students, to facilitate understanding and comprehension of the lecture.
Students pose questions

Teaching and learning methods

Assigning study tasks to encourage students to use their thinking skills and formulate exam questions

D - General and transferable skills (other skills related to employability and personal development).

• Using libraries.

Using modern technologies in education .

-10Course Structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	The hours	The week
Exams	For lectures	Definition of methodology, the concept of scientific research methodology		**2**	1
		Types of scientific research		**2**	2
		Objectives of scientific research, characteristics of scientific research		**2**	3
		Elements that help in defining the topic of scientific research		**2**	4
		Ethics of scientific research, conditions of scientific research		**2**	5
		Definition of scientific research, importance of scientific research		**2**	6
		First exam		**2**	7
		Types of scientific research		**2**	8

		Scientific research method		**2**	9
		Conditions for reading scientific research		**2**	10
		Documentation in scientific research		**2**	11
		Types of scientific theft		**2**	12
		Common mistakes in scientific research		**2**	13
		Steps of scientific research		**2**	14
		Second Exam		**2**	15

:	1. Scientific Research Methodology / Prof. Dr. Saad Salman Al-Mashhadani 2- Principles and Methods of Scientific Research / Academic Library 3. Scientific Research Methods in the Social Sciences and Humanities / Dr. Muhammad Abdul Salam
Special requirements (including, for example, workshops, journals, and websites(	

Social services (including, for example, guest lectures, vocational training, and field studies)	

Academic program description

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

saad sabir mohammed

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Time Series Analysis
4-Forms of presence available	Lectures
5-Course/ year	الفصل الاول/2025- 2026
6-Number of school hours (total)	30
7-Date of preparation of this description	
8-Objectives of the decision	
Contributing to the preparation of a master's student capable of employing multiple and diverse statistical methods in the field of time series so that they can be optimally utilized for the purpose of helping in building future outlooks, as well as providing students with the experience required in the future in the applied field,	

which will lead to raising the student's level of thinking with regard to applied aspects

9-Learning outcomes, teaching and learning methods and assessment

A- Cognitive objectives

- Knowing the importance of time series in all applied fields.
- Knowing all indicators related to the subject.
- Knowing the models used and the main estimation methods.

Teaching and learning methods

- Use lecture and discussion method.
- Conduct discussions on case study
- Use ready-made applications specific to the topic

Evaluation methods

Students' performance, responsibilities and expectations during the course:

- Discussing various scientific concepts and methods with various cases and applications specific to the course with the course instructor and their colleagues.
- Discussing exercises and applications based on the curriculum followed and comparing them practically.

• Conducting several exams for evaluation purposes. • Submitting a case study by the student.
C- Thinking skills • The ability to choose the appropriate method to solve the problem. • The ability to know the type of data. • The ability to know the related indicators according to the cases studied
Teaching and learning methods
• Discussion • Analysis of results • Assignments
D - General and transferable skills (other skills related to employability and personal development). • Using the Internet and trying to use ready-made programs. • Practical application and solving intensive exercises.

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
		Definition of the time series - its sections - components - models - methods for estimating the general trend - linear model (OLS) - moving averages - semi-moving average method - single exponential smoothing model - linear and non-linear general trend models - isolating the effect of the general trend from the series - accuracy measures - Applications - Seasonal changes - Isolating their effects from the series		2	First
		Stationarity, & non Stationarity Definitions - transformations		2	Second
		Auto covariance Autocorrelation Partial Autocorrelation Functions		2	Third
exams	For lectures	ARMA ARIMA SARMA SARIMA representations And Auto covariance function		2	Fourth
		Stationary TS Models		2	Fifth
		Stationary TS Models		2	Sixth
				2	VII.

		Stationary TS Models		2	VIII.
		Nonstationary TS models		2	Ninth
		Model identification		2	Tenth
		Parametric estimation		2	Eleventh
		Parametric estimation		2	Twelfth
		Spectral theory		2	Thirteenth
		EXAM		2	Fourteenth
		Spectral theory		2	Fifteenth

11-Infrastructure	
1-James Douglas Hamilton (1994) "Time Series Analysis" Wiley. 2-Spyros G. Makridakis, Steven C. Wheelwright, Rob J. Hyndman (1998) "Forecasting: Methods and Applications" John Wiley & Sons 3- William W. S. Wei (1990) " Time Series Analysis: Univariate and Multivariate Methods" Addison-Wesley Pub. 4- William W. S. Wei (2006) " Time Series Analysis: Univariate and Multivariate Methods" Addison-Wesley Pub	Required readings: Basic texts Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program
description

Dr. Tareq Azeez Saleh

1-Educational institution	University of Wasit / College of Administration and Economics
2- University Department Center	Statistics Department
3- Course name/code	Multivariate Analysis
4- Available forms of attendance	Lectures
5- Semester / Year	Chapter one/ 2025 -2024
6- Number of study hours (total)	30
7-Date of preparation of this description	
8-Course objectives	
Focuses on applying statistical methods and tools by identifying the concept of classifying Markov chains, addressing the most important theories related to Markov chains, identifying the concept of random processes with applied examples, explaining the most important discrete and continuous statistical distributions, explaining Bernoulli processes, Poisson processes, and branching processes with applied examples, in addition to identifying the modified distribution and the probability of extinction.	

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
		Concept of matrix algebra and matrix calculates		2	First
		Some of definition		2	Second
		Useful properties for orthogonal matrices		2	Third
exams	For lectures	Characteristic root and vectors of any matrix		2	Fourth
		Differentiation with vectors and matrices		2	Fifth
		Multivariate normal distribution		2	Sixth
		Bivariate normal distribution		2	VII.
		Conditional and marginal distribution of multivariate normal distribution		2	VIII.
		Examination -1		2	Ninth
		Var- covariance of the random vector		2	Tenth
		Estimation of the mean vectors and the var-covariance		2	Eleventh
		The partial correlation coefficient and the correlation coefficient		2	Twelfth
		Definition of the principle components population		2	Thirteenth
		The wishart distribution		2	Fourteenth
		Examination		2	Fifteenth

-10Infrastructure	
Morrison , D, F, ((1976)), ((Multivariate statistical methods)) , second edition .MCGraw . hill	Required readings: ▪ Basic texts ▪ Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Course Description Form

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Wafaa Jaafer Husain

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Biostatistics
4-Forms of presence available	Lectures
5-Course/ year	الفصل الاول/2024- 2025
6-Number of school hours (total)	30
7-Date of preparation of this description	
8-Objectives of the decision	
Participating in qualifying a master's student capable of using multiple and diverse statistical methods in the field of statistical tests and vital statistics, especially those related to statistics of births, deaths, divorces, and life tables, so that he can benefit from them in the applied reality in the health field, building future consultations, as	
9-Learning outputs and methods of teaching, learning and evaluation	
reality.	

A- Knowledge objectives

- Knowing the importance of vital statistics in the applied field, especially in health and environmental aspects.
- Know all the indicators of the Biostatistics.
- Knowledge of the tests used and the main methods of estimation.

B. skills objectives of the Rapporteur

- Enable the student to know the method of calculating vital ratios according to the available data.
- The ability to determine appropriate statistical methods for estimating and extracting vital percentages in the health, environmental, and biological fields.

Teaching and learning methods

- Use the lecture and discussion method.
- Conduct discussions about a case study.

Methods of evaluation

- Students' performance and responsibility in adhering to the lecture topic and what is expected of them to expand upon it while teaching the course.
- Discussing scientific concepts and methods related to vital statistics, most of which rely on percentages.
- Discussing exercises and applications based on the followed curriculum and comparing it practically.
- Conducting several exams for evaluation purposes.
- Submission of a case study by the student case study

C. Thinking skills

- The ability to choose the appropriate method to solve the problem.
- The ability to know the type and nature of data related to vital statistics.
- The ability to know the indicators related to vital statistics and according to the cases studied.

Teaching and learning methods

- Scientific discussion.
- Analyze the results of examples and exercises.
- Duties assigned to students.

General and transferable skills (other skills related to employability and personal development).

- Use the Internet and try to use ready-made programs.
- Practical application and solution of intense exercises.

10. Structure of the decision					
Method of assessment	Method of education	Name of unit/course or subject	Required learning outcomes	Hours	The week
Discussion	Lecture	Concepts The population, samples, benefits of their use, observations and biological data		2	First
		Types of samples Random samples include simple, cluster, systematic, and stratified. Non-random sampling includes quotas and intentional sampling		2	Second
		Representation of biological data Single and double frequency distribution tables and graphs		2	Third

		Measures of central tendency biological data (arithmetic mean, weighted arithmetic mean, median, and mode) for classified and unclassified data		2	Fourth
		Measures of dispersion Range and variance , standard deviation and standard score And the coefficient of variation		2	Fifth
		Correlation Simple correlation coefficient Partial and multiple correlation coefficient, contingency tables, and independence test		2	Sixth
				2	VII.
	Discussion	Lecture	Applications of some parametric tests to biological data	2	VIII.

		z-test, t-test, F-test, analysis of variance table ANOVA, and chi-square test			
		Applications of some experimental design models <u>Biological data</u> Complete randomized design and randomized block design		2	Ninth
		Death statistics		2	Tenth
		Birth statistics		2	Eleventh
		Fertility statistics		2	Twelfth
		Statistics Marriage and divorce		2	Thirteenth
		Life tables		2	Fourteenth
2nd EXAM				2	Fifteenth

11. Infrastructure

1 – الاحصاء البيولوجي " (2018) بني كرش ،عماد توما Biostatistics" الجامعة التقنية الشمالية. 2- Daniel,W.W., Cross,C.L.(2014) "Biostatistics" John Wiley & Sons.	Required readings: ▪ Basic texts ▪ The Rapporteur wrote ▪ Other

	Special requirements (e.g. workshops, periodicals, software and websites)
	Social services (e.g. guest lectures, vocational training and field studies)

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Ahmed Mahdi Saleh

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	For his teachers
4-Forms of presence available	Lectures
5-Course/ year	الفصل الاول/2025- 2026
6-Number of school hours (total)	30
7-Date of preparation of this description	
8-Objectives of the decision	
Participate in the qualification of a master student who is able to fill the various statistical methods in the field of non-teacher tests so that they can be used in an optimal manner for the purpose of helping to build future consultations as well as providing students with the required experience in the future in the applied field, which will lead to raising the level of thinking of the student in relation to the applied aspects	

3- Learning outputs and methods of teaching, learning and evaluation

أ- **Knowledge objectives**

- Know the importance of non-teaching methods in all fields of application.
- Know all the indicators of the material.
- Knowledge of the tests used and the main methods of estimation.

B. skills objectives of the Rapporteur

- Enable the student to know the non-teacher method and according to the appropriate application given.
- Ability to identify appropriate statistical methods of estimation
- The ability to know the types of data that the student is dealing with and then can choose the appropriate test.

Teaching and learning methods

- Use the style of lecture and discussion.
- Discussions about the case study
- Use of ready-made applications

Methods of evaluation

- Performance, responsibility and expected of students during course teaching.
- Discuss the various scientific concepts and methods with the variety of cases and applications of the course with the professor of the material and their colleagues.
- Discuss exercises and applications based on the curriculum and compare them practically.
- Conduct several exams for the purpose of evaluation.
- تقديمcase study من قبل الطالب.

C. Thinking skills

- The ability to choose the right method to solve the problem
- Ability to know the type of data
- The ability to know the indicators associated and according to the studied cases

Teaching and learning methods

- The discussion
- Analysis of results
- Duties

General and transferable skills (other skills related to employability and personal development).

- Use the Internet and try to use ready-made software.
- Practical application and solution of intensive exercises.

10. Structure of the decision					
Method of assessment	Method of education	Name of unit/course or subject	Required learning outcomes	Hours	The week
Discussion	Lecture	Single Sample Inferential Statistical Tests	The Wilcoxon Signed-Ranks Test, The Kolmogorov-Smirnov Goodness-of-Fit Test.	2	First
		Single Sample Inferential Statistical Tests	The Lilliefors test for normality, The Chi-Square Goodness-of-Fit Test.	2	Second
		Single Sample Inferential Statistical Tests	The Binomial Sign Test, The single sample test for the median.	2	Third
		Single Sample Inferential Statistical Tests	Test for comparing two Poisson count, The Single Sample Runs Test, The runs test for serial randomness	2	Fourth
		Two Independent Samples (and Related Measures of Association/Correlation) Statistical Tests	The Mann-Whitney *U* Test, The Kolmogorov Smirnov Test for Two Independent Samples.	2	Fifth
		Two Independent Samples (and Related Measures of	The Siegel-Tukey Test for Equal Variability, The Moses Test for Equal Variability.	2	Sixth

		Association/Correlation) Statistical Tests			
1st EXAM					VII.
Discussion	Lecture	Two Independent Samples (and Related Measures of Association/Correlation) Statistical Tests	The Chi-Square Test for Homogeneity, The Fisher exact test. Measures of association for *r* x *c* contingency table.	2	VIII.
		Two Dependent Samples Statistical Tests	Sandler's A test, The Westlake Schuirmann test of equivalence of two dependent treatments.	2	Ninth
		Two Dependent Samples Statistical Tests	The Wilcoxon Matched-Pairs Signed-Ranks Test, The Binomial Sign Test for Two Dependent Samples, The McNemar Test	2	Tenth
		Two or More Independent Samples (and Related Measures of Association/Correlation) Statistical Tests	The Kruskal-Wallis One-Way Analysis of Variance by Ranks, The Jonckheere Terpstra test for ordered alternatives.	2	Eleventh
		Two or More Independent Samples (and Related Measures of	The Vander-Waerden Normal Scores Test for *k* Independent Samples.	2	Twelfth

		Association/Correlation) Statistical Tests			
		Two or More Dependent Samples (and Related Measures of Association/Correlation) Statistical Tests	The Friedman Two Way Analysis of Variance by Ranks, The Cochran *Q* Test	2	Thirteenth
2nd EXAM				2	Fourteenth
Discussion	Lecture	Two or More Dependent Samples (and Related Measures of Association/Correlation) Statistical Tests	Measures of Association	2	Fifteenth

11. Infrastructure	
1-James Conover (1987) "Nonparametric Statistics" Wiley. 2- rajagobolan . C (1998) "selected Nonparametric Tests" John Wiley & Sons 3- Lapchez (1990) " All Parametric and Nonparametric Tests" Addison-Wesley Pub.	Required readings: ▪ Basic texts ▪ The Rapporteur wrote ▪ Other
	Special requirements (e.g. workshops, periodicals, software and websites)

	Social services (e.g. guest lectures, vocational training and field studies)

Course Description Form

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program description

Abbas Lafa Knehar

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Probability and mathematical statistics
4-Forms of presence available	Lectures
5-Course/ year	First-2025- 2026/
6-Number of school hours (total)	30
7-Date of preparation of this description	21-92025
8-Objectives of the decision	

After completing the course, the university course must be on

• Account for some of its operations.

• Dealing with discrete, continuous, and mixed randomness with probability ratios and their expectations.

• Calculating the conditional expectation effect, its characteristics, means, variances, central and eccentric moments, and the moment generating function. It

also deals with conditional expectation and conditional variance as random variables and how to find their distributions.

• Learn how to find the probability distribution of some functions of random variables using the moment generating function, CDF, transformations and ranking statistics.

9- Learning outcomes and methods of teaching, learning and evaluation

B- Cognitive objectives

• Know all the indicators of the material.

• Knowledge of the tests used and the main estimation methods.

B - The skills objectives of the course

• The ability to determine appropriate statistical methods for estimation

• The ability to know the types of data that the student deals with and then he can choose the appropriate distribution

Teaching and learning methods

• Use the lecture and discussion method.

• Conduct discussions about the case study

• Use ready-made applications specific to the subject

Evaluation methods

• Students' performance, responsibility, and expectations of them while teaching the course.

• Discussing various scientific concepts and methods, along with a variety of cases and applications related to the course, with the subject professor and their colleagues.

• Discussing exercises and applications based on the followed curriculum and comparing it practically.

• Conducting several exams for evaluation purposes.

• Submission of a case study by the student.

C- Thinking skills

• The ability to choose the appropriate method to solve the problem

• The ability to know the type of data

• The ability to know the indicators related to and according to the cases studied

Teaching and learning methods

Discussion

- Analyze the results

• Duties

General and transferable skills (other skills related to employability and personal development).

• Use the Internet and try to use ready-made programs.

• Solve intense exercises.

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
		Introduction Point estimation		3	First
		Estimaton Evaluating estimators		3	Second
		Unbiased ness Meansquare error consistency		3	Third
		Sufficiency Factorization criterion		3	Fourth
		Rao-blackwell theorem completeness		3	Fifth
		Efficiency Minimum variance bound estimation		3	Sixth
		exam		3	VII.
		Method of estimation Method of moments		3	VIII.
		Maximum likelihood estimation(mle) Properties of MLE		3	Ninth
		Bayesian estimation and minimax estimation		3	Tenth
		Interval estimation Confidence interval for M		3	Eleventh
		Confidence interval for the difference of mean		3	Twelfth
		Testing of hypothes Uniformly most powerfull testes		3	Thirteenth
		Exam		3	Fourteenth
		The sequential probability raiatest Minimax and Bayesian tests		3	Fifteenth

11-Infrastructure	
• The goal of inferential statistics in scientific research is to analyze data and create results using limited results to reach conclusions about the total population. A prelude to inferential statistics to provide strong, consistent evidence for theory and assumptions in research. Specifying inferential statistics contributes to the validity of hypotheses and their results for exclusive populations.	Required readings: ▪ Basic texts ▪ Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the

student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program description

Dr. Tareq Azeez Saleh

University of Wasit / College of Administration and Economics	-1 Educational institution
Statistics Department	2University Department Center
Stochastic processes	9- Course name/code
Lectures	10- Available forms of attendance
Chapter Two 2025 -2026/	11- Semester / Year
30	12- Number of study hours (total)
1-10-2023	13- Date of preparation of this description
14- Course objectives	
Focuses on applying statistical methods and tools by identifying the concept of classifying Markov chains, addressing the most important theories related to Markov chains, identifying the concept of random processes with applied examples, explaining the most important discrete and continuous statistical distributions, explaining Bernoulli processes, Poisson processes, and branching processes with applied examples, in addition to identifying the modified distribution and the probability of extinction.	

-9 Learning outcomes, teaching and learning methods and assessment

A- Cognitive objectives

- •Ability to collect and analyze data
- •Ability to work within groups with different processors to achieve specific goals

B - Teaching and learning methods

- Delivering in-person lectures and using illustrative means in the form of detailed explanation on the board and using other introductory means on the electronic projector and real-life examples that can be used, with students being asked to prepare research papers on this topic.

Evaluation methods

- Distributing the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.

c - Thinking skills

- •Read and understand the exercise or problem
- •Determine the appropriate tool for analysis
- •Make a decision

Teaching and learning methods

- Providing exercises for the student to use thinking skills to find solutions

D - General and transferable skills (other skills related to employability and personal development)

- •Use of libraries
- •Use of modern technologies in teaching and learning

-10 Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	The hours	The week
Exams	For lectures	Some definitions		**2**	1
		Stochastic processes		**2**	2
		Markov chain classification		**2**	3
		Theories about Markov Chains - 1		**2**	4
		Theories about Markov Chains - 2		**2**	5
		Bernoulli processes		**2**	6
		Poisson processes-1		**2**	7
		Poisson processes-2		**2**	9
		First exam		**2**	9
		Branching processes-1		**2**	10
		Branching processes-2		**2**	11
		Modified distribution		**2**	12
		probability of extinction-1		**2**	13
		probability of extinction-2		**2**	14
		Second exam		**2**	15

1. Infrastructure

Stochastic Operations - Authored by Dr. Faris Muslim Al-Athari and Lecturer Ali Abdul-Hussein Al-Wakeel - 1991 AD	Required readings: Basic texts Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Model and description of the decision

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Ali Hameed Yousif

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Design and analysis of experiments
4-Forms of presence available	Lectures
5-semester/year	Second/2025-2026
6-Number of school hours (total)	30
7-Date of preparation of this description	21-9-2025
8-Objectives of the decision	
Definition of designs, their types, efficiency, and effective experiments, and definition of the models and statistical tools needed to analyze data for experiments implemented using types of designs.	

-Learning outcomes, teaching and learning methods and assessment

A- Cognitive objectives

• The ability to collect and analyze data

• The ability to work within groups with different processors to achieve specific goals

• Understanding statistical theory, estimation and prediction

Teaching and learning methods

• Delivering in-person lectures and using illustrative means in the form of detailed explanation on the board and using other introductory means on the electronic projector and real-life examples that can be used, with students being asked to prepare research papers on this topic.

Evaluation methods

- Periodic and semester exams

C- Thinking skills

• Reading and understanding the exercise or problem

• Determining the appropriate tool for analysis

• Making a decision

Teaching and learning methods

• Providing exercises for the student to use thinking skills to find solutions.

D - General and transferable skills (other skills related to employability and personal development).

- Use of libraries.
- Follow-up of the development of universities with similar specializations.
- Use of modern technologies in teaching and learning.

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
discussion	lecture	Concepts, Terminology of Experimentation and Design – Fixed and Random Models		3	First
		Pre-Experimental Tests		3	Second
		Post-Experimental Tests		3	Third
		Completely Randomized Design		3	Fourth
		Completely Randomized Design with a Single Observation Recording for the Experimental Piece. Mathematical Model and Statistical Analysis.		3	Fifth
		Completely Randomized Block Design		3	Sixth
		Incompletely Randomized Block Design		3	VII.
		Crossover and Youden Square Design		3	VIII.
		Latin and Greek Square Design		3	Ninth
		Two-Level Factorial Experiments		3	Tenth
		Three-Level Factorial Experiments		3	Eleventh
		Analysis of Variance		3	Twelfth
		Split-Plots		3	Thirteenth
		Integration		3	Fourteenth
		-15 Exam.		3	Fifteenth

11-Infrastructure	
1- Montgomery,D.C "Design and analysis of experiment" 2- Wner B,J"statistical principle of experimental design" 3- تصميم وتحليل التجارب الزراعية . د. خاشع محمود الراوي ، و د. عبد العزيز محمد خشاب . 1891 ، مطابع جامعة الموصل. ▪ تطبيقات في تصميم وتحليل التجارب . د. مدحت مجيد 4- الساهوكي و كريمة محمد وهيب. 1881 . مطابع التعليم العالي. شارلز هيكس،ترجمة قيس سبع خماس"المفاهيم الاساسية في تصميم وتحليل التجارب"	Required readings: Basic texts Course books ▪ Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Course Description Form

This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether the student has made the most of the learning opportunities available. It must be linked to the program description

Wafaa Jaafer Husain

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Reliability
4-Forms of presence available	Lectures
5-Course/ year	second/2025-2026
6-Number of school hours (total)	30
7-Date of preparation of this description	21-9-2025
8-Objectives of the decision	
The study of reliability aims to establish mechanisms for manufacturing a product in an easy way so that it can be maintained and its parts that are susceptible to damage or failure to be replaced without difficulties and to know the probability that the product will be completed for a specific period of time under the normal conditions of use without failure.	

9-Learning outcomes, teaching, learning and assessment methods

A- Tourism objectives

• Keeping up with the statistical trend

• Communicating with everything new or useful and surrounding it

Teaching and learning methods

• Delivering in-person lectures and using illustrative means in the form of detailed explanation on the board and using other introductory means on the electronic projector and real-life examples that can be used, with students being asked to prepare research papers on this topic.

Evaluation methods

• Weekly exams, homework, monthly and daily assignments, and end-of-year exam.

C- Thinking Skills

• The ability to understand statistical methods and apply them practically.

• Dealing with economic crises and problems and modeling them.

• Teaching the student how to deal with and deal with product failure models

Teaching and learning methods

• Lectures

• Discussions

• Analysis

D - General and transferable skills (other skills related to employability and personal development).

- Using the Internet
- Using ready-made programs
- Searching for research related to specific topics
- Analyzing the results of real data

10-Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or topic**	**Required learning outcomes**	**The hours**	**The week**
discussion	lecture	**Introduction**	Basic Reliability concept	2	First
			Solved problems	2	Second
			Exponential failure model	2	Third
			Gamma failure mode	2	Fourth
			Weibull failure model	2	Fifth
			Log normal failure mode	2	Sixth
		Solved problem and general problems		2	VII.
		Statistical Application	**1st EXAM**	2	VIII.
		Statistical Application		2	Ninth
		Statistical Application	Series and Parallel system	2	Tenth
		Statistical Application	Solved problem and general problems	2	Eleventh
		Statistical Application	K out of n parallel configuration and Redundancy	2	Twelfth
		Statistical Application	Solved problem and general problems	2	Thirteenth
			Mean li and reliabili estimat	2	Fourteenth
		Statistical Application	Exam for second month	2	Fifteenth

11-Infrastructure	
1-Statistical reliability. 2-Dr Abdul Majeed Hamza AL-Nasser 3 -Mathematical theory of reliability Barlow .R.E	Required readings: ▪ Basic texts ▪ Course books ▪ Other

	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Model and description of the decision

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Dr. Ayad Habiab SHEMAIL

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Economic measurement
4-Forms of presence available	Lectures
5-Course/ year	second/2025-2026
6-Number of school hours (total)	30
7-Date of preparation of this description	21-9-2025
8-Objectives of the decision	

9-Learning outcomes, teaching and learning methods and assessment
A- Cognitive objectives - Deepening knowledge and understanding of MATLAB programming - Understanding the importance of model building in general and across various fields - Identifying specific problems encountered in MATLAB programming and how to perform statistical analysis using MATLAB - Generating data using statistical distribution methods - Programming numerical methods for statistical analysis
Teaching and learning methods
• Implementing a group-based learning method using computer programming • Employing a lecture and discussion approach • Assigning students tasks such as writing statistical programs

• Presenting a research paper or scientific article on a case study related to MATLAB programming
Evaluation methods
• Discussing concepts and terminology with instructors and colleagues • Feedback • Brainstorming
C- Thinking skills - Ability to program concisely. - Ability to generate data. - Ability to solve equations in MATLAB using models. - Ability to compare and contrast programming algorithms.
Teaching and learning methods
• Lectures • Discussions
D - General and transferable skills (other skills related to employability and personal development). - Using the computer lab -Using the internet -Using ready-made software -Scientific research - Analyzing real-world data results

10-Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	The hours	The week
discussion	lecture	Introduction to MATLAB and Working Environment	Introduce MATLAB environment, interface, and basic commands for statistical applications.	2 hours	1
		MATLAB Programming Fundamentals	Develop skills in creating variables, vectors, and matrices and performing basic computations .	2 hours	2
		Mathematical and Logical Operations in MATLAB	Apply arithmetic, logical operations, and organize scripts using comments and structured code.	2 hours	3
		Programming Control Structures (if, for, while)	Implement control flow structures (if, for, while) for solving statistical problems.	2 hours	4
		Scripts and User-Defined Functions	Create scripts and user-defined functions to automate statistical procedures.	2 hours	5
		Data Import and Data Preprocessing	Import datasets from external files (Excel, CSV) and perform data preprocessin g and cleaning.	2 hours	6
		Descriptive Statistics in MATLAB	Perform descriptive statistical analysis and	2 hours	7

			interpret measures of central tendency and dispersion.		
		Data Visualization and Statistical Plots	Generate statistical graphs and customize plots for academic and research reporting.	2 hours	8
		Probability Distributions and Random Simulation	Apply probability distributions, generate random samples, and perform simulation studies.	2 hours	9
		Statistical Hypothesis Testing	Conduct hypothesis testing (Z-test, T-test, Chi-square) and interpret statistical significance.	2 hours	10
		ANOVA (Analysis of Variance) in MATLAB	Perform Analysis of Variance (ANOVA) and interpret results for research applications.	2 hours	11
		Correlation and Regression Analysis	Apply correlation analysis and linear/multiple regression modeling for statistical inference.	2 hours	12
		Nonparametric Statistical Tests	Conduct nonparametric statistical tests and compare results with parametric methods.	2 hours	13
		Applied Project and Research Data Analysis	Develop a complete	2 hours	14

			applied project using real research data and present statistical findings.		
		EXAM	EXAM	2 hours	15

1- 1 Metcalfe, A., Green, D., Greenfield, T., Mansor, M., Smith, A., & Tuke, J. (2019). *Statistics in engineering: With examples in MATLAB® and R*. Chapman and Hall/CRC. 2- De Sá, J. M., de Sa, J. P. M., & de Sa, J. M. (2007). Applied statistics using SPSS, Statistica, MatLab and R (p. 420). Berlin/Heidelberg, Germany: Springer. 3- Gilat, A. (2017). *MATLAB: An introduction with Applications*. John Wiley & Sons.	Required readings: Basic texts Course books Other
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)

Model and description of the decision

This course description provides a required summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he or she has made the most of the available learning opportunities. It should be linked to the description of the program.

Dr. Ahmed Razzaq Al-Lami

1. Educational institution	Wasit University/ Faculty of Management and Economics
2- University Department/ Center	Department of Statistics
3-The name/code of the decision	Economic measurement
4-Forms of presence available	Lectures
5-Course/ year	second/2025-2026
6-Number of school hours (total)	30
7-Date of preparation of this description	21-9-2025
8-Objectives of the decision	

9-Learning outcomes, teaching and learning methods and assessment
A- Cognitive objectives • Deepening knowledge and understanding • Knowing the importance of building models in general and in various fields • Identifying the problems specific to building these models • Estimating the parameters of these models and estimating the model as a whole under all conditions • Studying the characteristics of the estimators • Testing the significance • Building a system of equations
Teaching and learning methods
Adopting the lecture and discussion method, in addition to requesting a real study on real data according to all the data of this topic and submitting a paper or research on a case related to economic measurement.
Evaluation methods

• Discussing the concepts and terminology of the course with the course instructor and her colleagues. • Discussing the foundations on which the curricula are built and comparing them to reality. • Discussing the elements of the curriculum and its organizations with the course instructor and her colleagues.
C- Thinking skills • Ability to build models • Ability to test for problems • Ability to find the best model • Ability to build the most efficient model
Teaching and learning methods
• Lectures • Discussions
D - General and transferable skills (other skills related to employability and personal development). • Using the Internet • Using ready-made programs • Searching for research related to specific topics • Analyzing the results of real data

10-Course structure					
Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	The hours	The week
discussion	lecture	The nature of econometrics – the simple and general linear model (GLM)	Definitions - The importance , objectives and types of econometric models - Least squares estimator - Characteristics of the estimator - Tests - Maximum likelihood estimators - Deviation analysis - Confidence intervals Estimating about the origin - inference	2	First
		Heteroscedasticity problem	Definition of the problem - WLS estimators - efficiency of the new estimator - heterogeneity of variance	2	Second
		Heteroscedasticity problem	Tests problem - treatment - inference - ANOVA-	2	Third
		Autocorrelation problem	Definition of the problem - GLS estimators - efficiency	2	Fourth

			of the new estimator - testing the problem - treatment - inference - ANOVA		
		Multicollinearity problem	Definition of the problem - tests problem - treatment - RR regression estimators - characteristics of these estimators - inference - ANOVA	2	Fifth
		Multicollinearity problem	Estimators of the principal components (PP) - properties of these estimators – inference ANOVA	2	Sixth
		Identical Restrictes	Concepts - RLS estimators - properties of these estimators – inference ANOVA divided linear models	2	VII.
		Identical Restrictes	divided linear models	2	VIII.

		unIdentical Restrictes	KMENTA method - THEILAD method	2	Ninth
		unIdentical Restrictes	Mixed estimation method (MEM estimator)--properties of these estimators – inference ANOVA	2	Tenth
		Identical Restrictes	divided linear models	2	Eleventh
		System of simultaneous equations	Assumptions - diagnosis and reduction	2	Twelfth
		System of simultaneous equations	–The general formula for diagnosis and reduction	2	Thirteenth
		System of simultaneous equations	Two-stage least squares-covariate method	2	Fourteenth
		FINAL Exam		2	Fifteenth

33)"Econometrics" . (1964)" Econometric theory ",wiley 34)"Econometric Methods"London Elements of Econometrics", 93)"Statistical Methods in ı Diego	Required readings: Basic texts Course books Other

6-Kazem, Amouri Hadi and Muslim, Basem Shalabi, (2002), “Advanced Econometrics - Theory and Application” Al-Tayf Press	
	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, for example, guest lectures, vocational training, and field studies)