

University of Mosul

جامعة الموصل



First Cycle – Bachelor's degree (B.Sc.) – Statistics and Informatics

بكالوريوس – علوم في الإحصاء والمعلوماتية



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1. **Mission & Vision Statement**

Vision Statement

To be a leading and distinguished academic department in the fields of Statistics and Informatics, excelling in education, scientific research, and community service by preparing highly qualified graduates equipped with statistical, informatics, analytical, and technical competencies. The department seeks to advance scientific research, support evidence-based decision-making, and keep pace with developments in Data Science and Artificial Intelligence, thereby contributing to sustainable development.

Mission Statement

The Department of Statistics and Informatics at the University of Mosul is committed to delivering high-quality education and scientific research in the fields of Statistics and Informatics. The department aims to prepare graduates with the scientific knowledge and practical skills required to meet labor market needs, promote scientific research and innovation, and apply statistical methods, information technologies, and data science techniques to address real-world problems. It also seeks to foster professional and ethical responsibility, strengthen collaboration with academic, research, and community institutions, and support the continuous professional development of its faculty members.

2. **Program Specification**

Program code:	BSc-STAT	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

The Bachelor of Science (B.Sc.) in Statistics and Informatics is an academic programme that integrates Statistics, Information Technology, and Data Science. It is designed to prepare graduates with the scientific knowledge and practical skills required for data analysis, statistical modelling, and the development of information-based solutions that support evidence-based decision-making. The programme emphasizes the integration of theoretical foundations with practical applications, keeping pace with recent advances in Data Science and Artificial Intelligence.

The programme is structured to progressively develop students' knowledge and skills. During the first level, students acquire the fundamental principles of mathematics, statistics, and

computing. In the subsequent levels, the curriculum expands to include Mathematical Statistics, Statistical Inference, Regression Analysis, Design and Analysis of Experiments, Multivariate Analysis, Time Series Analysis, Database Systems, Statistical Programming, and Artificial Intelligence techniques for data analysis.

The programme adopts a balanced approach that combines lectures, practical sessions, computer laboratory work, and applied projects to enhance analytical thinking, problem-solving abilities, proficiency in statistical software, scientific reporting, and effective teamwork in multidisciplinary environments.

In the final academic year, students undertake an independent graduation research project addressing a practical problem in Statistics, Informatics, or Data Science. Through this project, students apply the knowledge and skills acquired throughout the programme, thereby strengthening their research capabilities and preparing them for professional careers or postgraduate studies.

3. Program Objectives

1. To provide students with a solid foundation in Statistics, Mathematics, and Information Technology, enabling them to understand the fundamental concepts, theories, and contemporary methodologies in Statistics and Informatics.
2. To develop students' competencies in data collection, organization, analysis, and interpretation using modern statistical methods and appropriate software tools to support evidence-based decision-making and solve real-world problems.
3. To enhance students' knowledge of Data Science and Information Technology, including database systems, data management, data analysis, data visualization, and their applications across diverse disciplines.
4. To develop students' programming and computational skills required for data analysis and the development of statistical and information-based solutions using appropriate programming languages and software tools.
5. To strengthen analytical, critical thinking, and problem-solving skills through the application of statistical methods and quantitative models for data analysis, interpretation of results, and evidence-based decision-making.
6. To foster effective communication and teamwork skills through the preparation of scientific reports, clear presentation of statistical findings, and efficient collaboration within multidisciplinary teams.
7. To promote professional ethics and scientific responsibility in the collection, analysis, management, and dissemination of data while adhering to the principles of data privacy, information security, and intellectual property rights.
8. To prepare graduates who are competitive in the labor market and well-qualified for postgraduate studies by keeping pace with recent advances in

Statistics, Informatics, Data Science, and Artificial Intelligence, while fostering lifelong learning and continuous professional development.

4. Student Learning Outcomes

The Bachelor of Science in Statistics and Informatics programme is designed to prepare graduates with the knowledge and skills required to collect, organize, analyze, and interpret data, and to apply statistical methods, information technologies, and data science techniques to support evidence-based decision-making and solve real-world problems across a wide range of disciplines. The programme integrates theoretical foundations with practical applications, enabling graduates to work effectively with data using modern statistical methodologies and specialized software while adhering to professional ethics and scientific responsibility.

Learning Outcome 1: Statistical Knowledge

Upon successful completion of the programme, graduates will be able to:

- Demonstrate a sound understanding of the fundamental concepts of Statistics, Probability, and Statistical Inference, including hypothesis testing, regression analysis, and sampling techniques.
- Apply appropriate statistical methods to analyze data, interpret results, and draw scientifically valid conclusions.

Learning Outcome 2: Data Analysis

Upon successful completion of the programme, graduates will be able to:

- Collect, organize, clean, and process data using appropriate methodologies.
- Utilize statistical software and programming languages for data analysis, data visualization, and scientific reporting.
- Select and apply appropriate statistical models to address research questions and practical problems.

Learning Outcome 3: Programming and Information Technology

Upon successful completion of the programme, graduates will be able to:

- Apply appropriate programming languages and computational tools in Statistics and Informatics applications.
- Develop simple applications and software solutions for data processing and the implementation of statistical methods and algorithms.

Learning Outcome 4: Analytical and Critical Thinking

Upon successful completion of the programme, graduates will be able to:

- Apply analytical and critical thinking skills to solve statistical and informatics-related problems.
- Evaluate statistical results, examine underlying assumptions, identify limitations, and propose appropriate solutions.
- Analyze data to identify patterns and trends that support evidence-based decision-making.

Learning Outcome 5: Communication and Teamwork

Upon successful completion of the programme, graduates will be able to:

- Communicate statistical concepts and findings effectively to both specialist and non-specialist audiences.
- Prepare scientific reports and deliver professional presentations using appropriate communication tools.
- Work effectively and collaboratively within multidisciplinary teams.

Learning Outcome 6: Ethics and Professional Development

Upon successful completion of the programme, graduates will be able to:

- Adhere to professional and ethical standards in data collection, analysis, and management while respecting data privacy, confidentiality, and intellectual property rights.
- Apply professional standards in the use of statistical methods and information technologies.
- Engage in lifelong learning and continuous professional development while keeping pace with advances in Statistics, Informatics, and Data Science.

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6. Credits, Grading and GPA

Credits

University of Mosul is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

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:				
Number 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.				

Calculation of the Cumulative Grade Point Average (CGPA)

- The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$CGPA = [(1^{st} \text{ module score} \times ECTS) + (2^{nd} \text{ module score} \times ECTS) + \dots] / 240$$

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT101	Elementary Statistics I	93	82	7.00	C	
STAT102	Calculus I	93	82	7.00	B	
STAT103	Basic Programming	63	87	6.00	B	
STAT104	Linear Algebra	63	87	6.00	B	
UOM104	Democracy & Human Rights	33	17	2.00	B	
UOM101	Arabic Language	33	17	2.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT107	Elementary Statistics II	93	82	7.00	C	
STAT108	Calculus II	93	82	7.00	B	
STAT109	Demography	63	87	6.00	C	
STAT110	MATLAB programming	63	62	5.00	B	
UOM102	English Language 1	33	17	2.00	B	
UOM103	Computer 1	48	27	3.00	B	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT201	Probability I	78	72	6.00	C	
STAT202	Sampling Theory I	78	72	6.00	C	
STAT203	Numerical Analysis I	63	62	5.00	B	Calculus I, Calculus II
STAT204	Calculus III	63	62	5.00	B	Calculus I, Calculus II
STAT205	Data Base	63	37	4.00	B	
UOM2050	Crimes of the Baath Regime in Iraq	33	17	2.00	B	
UOM2012	Arabic Language 2	33	17	2.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT206	Probability II	78	72	6.00	C	
STAT207	Sampling Theory II	78	72	6.00	C	
STAT208	Numerical Analysis II	63	62	5.00	B	Calculus I, Calculus II
STAT209	Time Series Analysis	78	72	6.00	B	
STAT210	Research Methodology	33	17	2.00	S	
UOM2032	Computer 2	48	27	3.00	B	
UOM2022	English Language 2	33	17	2.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT301	Mathematical Statistics I	78	97	7.00	C	
STAT302	Regression Analysis I	78	72	6.00	C	
STAT303	Operation Research	63	62	5.00	B	
STAT304	Data Mining	63	62	5.00	C	
STAT305	Hypothesis Testing	48	52	4.00	C	
STAT306	Computer Applications	63	12	3.00	B	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT307	Mathematical Statistics II	93	82	7.00	C	
STAT308	Regression Analysis II	78	72	6.00	C	
STAT309	Biostatistics	63	62	5.00	C	
STAT310	Quality and Reliability	63	62	5.00	C	
STAT311	Statistical Learning	63	37	4.00	B	
STAT312	Statistical Applications	63	12	3.00	B	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT401	Stochastic Processes I	78	97	7.00	C	
STAT402	Statistical Inference I	78	97	7.00	C	
STAT403	Multivariate Analysis	63	62	5.00	C	
STAT404	Computational Statistics	63	62	5.00	B	
STAT405	Design and Analysis of Experiments I	48	52	4.00	C	
STAT406	English Language	33	17	2.00	S	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STAT407	Stochastic Processes II	78	97	7.00	C	
STAT408	Statistical Inference II	78	97	7.00	C	
STAT409	Statistical Modeling	63	62	5.00	C	
STAT410	Non-parametric Statistics	63	62	5.00	C	
STAT411	Design and Analysis of Experiments II	48	52	4.00	C	
STAT412	Project	33	17	2.00	B	

8. Contact

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