**Academic program description form**

**University Name……Basrah…………**

**Faculty/ Institute ……Administration and Economics……………**

**Scientific Department ………satatistics…………….**

**Academic or Professional Program Name …Statistics Program.**

**Final Certificate Name ………Multivariate analysis…………..**

**Academic system …Annual and Quarterly..**

**Description Preparation Date: 1/02/2024**

**File completion Date : 26/02/2024**

**Signature: Signature:**

**Head of Department Name : Scientific Associate Name:**

**Date: Date:**

**The file is checked of quality assurance and university performance**

**Director of the quality assurance and university performance department:**

**Date :**

**Signature:**

**Approval of the Dean**

|  |
| --- |
| 1. **Program vision**
 |
| **The ambition of the department is to maintain the distinguished scientific reputation derived from having graduates who have the knowledge, skill and ability to analyze and make decisions in the Informatics community.** |

|  |
| --- |
| 1. **Program mission**
 |
| **The statistics department should be a leading center in education and scientific research, and be a contributor to providing the society with highly qualified scientific cadres in the acquisition of knowledge.** |

|  |
| --- |
| 1. **Program objectives**
 |
| **1-Preparing and qualifying graduates specialized in statistical work to enable them to contribute to the development program in the government and private sector.** **2-enabling students to use the scientific method in determining the size and quality of the study sample and collecting and presenting special data in the study.****3-the ability to build indicators, analyze results and test statistical assumptions in various studies.** **4-the ability to use computers, Information Technology and ready-made statistical programs.****5-developing the ability of students to develop and design scientific experiments and analyze their results.** **6-preparing and qualifying students to continue studying in graduate studies by developing their intellectual, scientific and research skills.** |

|  |
| --- |
| 1. **Program accreditation**
 |
| **Programs and curricula approved by the sectoral authority and with a permissible change of 20%** |

|  |
| --- |
| 1. **Other external influences**
 |
| **Statistics deals with all ministries and institutions, public, private and mixed** |
| 1. **Program structure**
 |
| **reviews** | **Percentage**  | **Credit hours** | **Number of courses**  | **Program structure** |
| **Basic decision** |  | **90** | **90** | **Institution requirements** |
|  |  |  |  | **College requirements**  |
|  |  |  |  | **Department requirements** |
|  |  |  |  | **Summer training** |
|  |  |  |  | **Other** |

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

|  |
| --- |
| 1. **Program description**
 |
| **Credit hours**  | **Course name**  | **Course code**  | **Year/ level** |
| **Practical**  | **Theoretical**  |  |  |  |
|  | **Theoretical/ 3 units** | **Multivariate 1** |  | **2023-2024 / fourth** |

|  |
| --- |
| 1. **Expected learning outcomes of the program**
 |
| **Knowledge**  |
| **Statement of learning outcomes 1 gaining the ability to deal with forecasting problems** | **Learning outcomes 1 cognitive objectives** |
| **Skills**  |
| **Statement of learning outcomes 2 result processing skills** | **Learning output 2 Understanding the concept of multiple variables** |
| **Statement of learning outcomes 3 skills in short-and long-term planning** | **Learning output 3 understanding and knowledge of the basics of multivariate probability theory** |
| **Ethics**  |
| **Statement of learning outcomes 4 ability to perform multivariate statistical analysis** | **Learning outcomes 4 the ability to make the right decisions** |
| **Statement of learning outcomes 5 recognition and understanding of the preview method** | **Learning outcomes 5 summarizing data to build a statistical plan** |

|  |
| --- |
| 1. **Teaching and learning strategies**
 |
| **Discussion and dialogue** |

|  |
| --- |
| 1. **Evaluation methods**
 |
| **Exams, research, projects, exercise solutions and case study within multivariate** |

|  |
| --- |
| 1. **Faculty**
 |

|  |
| --- |
| **Faculty members**  |
| **Number of teaching staff**  | **Special requirements/skills if applicable)**  | **Specialization**  | **Academic rank** |
| **Lecturer**  | **Staff**  |  | **Special**  | **General**  |
|  | **On the angel** | **Computer** | **Mathematics** | **Applied Statistics** | **Statistics** | **Assistant professor** |

|  |
| --- |
| **Professional development**  |
| **Mentoring new faculty members** |
| **Briefly describes the process used to mentor new ,visiting ,full-time ,and part time faculty at the institution and department level.** |
| **Professional development of faculty members** |
| **Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies , assessment of learning outcomes , professional development…etc** |

|  |
| --- |
| **12 Acceptance criterion**  |
| **(setting regulations related to enrollment in the college or institute, whether central admission or others)** |
| **13The most important sources of information about the program** |
| **Various sources as well as the approved methodological book** |
| **14Program development plan** |
|  |

|  |
| --- |
| **Program skills outline** |
|  | **Required program learning outcomes**  |
| **Ethics**  | **skills** | **Knowledge**  | **Basic or optional** | **Course name**  | **Course code** | **Year / level**  |
| **C4** | **C3** | **C2** | **C1** | **B4** | **B3** | **B2** | **B1** | **A4** | **A3** | **A2** | **A1** |  | **Multivariate 1** |  | **Fourth / course 1** |
| **/** |  |  | **/** |  | **/** |  |  |  |  | **/** |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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

**Course description form**

|  |
| --- |
| 1. **Course name**
 |
| **Multivariate Analysis** |
| 1. **Course code**
 |
|  |
| 1. **Semester / year :**
 |
| **First and second semesters for year 2023-2024** |
| 1. **Description preparation date :**
 |
| **26-2-2024** |
| 1. **Available attendance form :**
 |
| **Theory form** |
| 1. **Number of credit hours (total) / number of units (total)**
 |
| **3 hours in first semester****2 hours in second semester** |
| 1. **Course administrator`s name ( mention all, if more than one name)**
 |
| **Name : Asmaa Ayoob Yaqoob Email :** **asmaa.yaqoob@uobasrah.edu.iq** |
| 1. **Course objectives**
 |
| **Course objectives**  | * **1- Developing the student’s skills in sports**
* **2- Constructing surveys**
* **3- Understand how to deal with and analyze multiple data**
 |
| 1. **Teaching and learning strategies**
 |
|  **Strategy**  | **Application strategy to actual data****Data analysis strategy and drawing conclusions****Data analysis strategy** |
| 1. **Course structure**
 |
| **Week** | **hours** | **Required learning outcomes** | **Unit or subject name** | **Learning method**  | **Evaluation method** |
| **1****2****3****4****5****6****7****8****9****10****11****12****13****14****15****16****17****18****19****20****21****22****23****24****25****26****27****28****29****30** | **3****3****3****3****3****=****=****=****=****=****=****=****=****=****=****3****=****3****2****2****2****=****=****=****=****=****=****=** | **Understand how to work with arrays****=****=****Understand the shape of multivariate distributions****Understanding matrix shapes****Understanding multivariate data methods****Understanding multivariate data methods****Understanding multivariate data methods****=****=****=****Understanding multivariate data methods****=****=****=****=****=****=****=****=****=****=** | Basic concepts about matricesBasic concepts about matricesQuadratic shapeClassification of arraysEigenvalues and characteristic vectorsMultivariate normal distribution=Multivariate binary normal distribution**Multivariate normal distribution for linear combinations****=****=****Molar** function of the momentsDiscriminant functionFirst semester examFind the distribution of the marginal multiple functionMarginal function in the case of independent variablesThe marginal function in the case of dependent variablesFind the distribution of the multiple conditional functionThe conditional function is in the case of independenceConditional function in the case of multiple variablesMultiple linear regression and multiple correlationParameter estimation methods for multivariate distributionsThe greatest possibility methodMultivariate hypothesis testingHotellink testPrincipal Compound MethodFactor analysisLegal connectionCluster and discriminant analysisSecond semester exam | **Theory****=****=****=****=****=****=****=****=****=****=****Theory****=****=****=****=****=****=****=****=****=****=** | **Exams and daily activity****=****=****=****=****=****=****=****=****=****=****=****=****=****=****Exams and daily activity****=****=****=****=****=****=****=****=****=** |
| 1. **Course evaluation**
 |
| **Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation , daily oral , monthly or written exams, reports ….etc** |
| 1. **Learning and teaching resources**
 |
| **Required textbooks (curricular books, if any)** | Anderson, T.W; (1981); "An Introduction to Multivariate Statistical Analysis"; John Willey and Sons, New-York |
| **Main references (sources)**  | Hardle, W. & Simar, L. ; (2007) ; "Applied Multivariate Statistical analysis"; Springer, Berlin , Germany |
| **Recommended books and references (scientific journals, reports** |  |
| **Electronic references, website**  |  |