



# Program Specification

— (Postgraduate)

Program Name: Master of Statistics

Program Code (as per the Saudi Standard Classification of Educational Levels and Specializations): 7

Qualification Level: Master degree in Science

Department: Mathematics and Statistics

College: College of Science

Institution: Taif University

Program Specification: New  updated\*

Last Review Date: 7/4/1445

\*Attach the previous version of the Program Specification.



## Table of Contents

A. Program Identification and General Information .....	3
B. Mission, Goals, and Program Learning Outcomes .....	4
C. Curriculum .....	5
D. Thesis and Its Requirements (if any).....	7
H. Student Admission and Support: .....	7
E. Faculty and Administrative Staff: .....	8
F. Learning Resources, Facilities, and Equipment: .....	9
G. Program Quality Assurance: .....	9
H. Specification Approval Data:.....	14



## A. Program Identification and General Information:

### 1. Program's Main Location:

Male section in Hawiya and Female section in Hawiya

### 2. Branches Offering the Program (if any):

Branch 1. Khurmah Branch,  
Branch 2. Turba Branch,  
Branch 3. Rania Branch

### 3. System of Study:

- Coursework & Thesis  Coursework

### 4. Mode of Study:

- On Campus  Distance Education  Other .....(specify)

### 5. Partnerships with other parties (if any) and the nature of each:

- Partnership Arrangement:
- Type of Partnership:
- Duration of Partnership:

### 6. Professions/jobs for which students are qualified:

- 1- Postgraduate studies.
- 2- Lecturer at the university level.
- 3- Teacher for the pre-university levels at the ministry of education.
- 4- Researcher at statistical research centers.
- 5- Financial institutions.

### 7. Relevant occupational/ Professional sectors:

### 8. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
One Track		

### 9. Total credit hours: (40)



## B. Mission, Goals, and Program Learning Outcomes

### 1. Program Mission:

Teaching the theory and practice of statistics to graduate students, conducting original research in statistical theory and methodology and preparing graduates statistically qualified to contribute to society.

### 2. Program Goals:

- 1- Preparing candidate for meaningful employment in business, industry, government.
- 2- Using statistics confidently to solve problems in related fields.
- 3- Preparing graduates statistically qualified to contribute to society.
- 4- Meeting the educational and developmental needs of the Kingdom in all domains relevant to statistics and its applications.

### 3. Program Learning Outcomes:\*

#### Knowledge and Understanding:

- |    |   |
|----|---|
| K1 | <b>Recognize</b> the fundamentals of Statistics as a living and unique discipline in its own right. |
| K2 | <b>Outline</b> statistical knowledge appropriate to professional activities.                        |
| K3 | <b>Describe</b> problems relating to the basic concepts of statistics.                              |

#### Skills:

- |    |   |
|----|---|
| S1 | <b>Develop</b> and apply statistical theory and methods in a wide range of situations relevant to research and real problems arising in real life problems. |
| S2 | <b>Apply</b> and interpret statistical analyses using state-of-the-art computational techniques.  |
| S3 | <b>Explain</b> and deploy statistical reasoning for problem solving.  |
| S4 | <b>Evaluate</b> , derive, compare, and justify statistical methods using the foundational mathematical framework of the discipline.                         |

#### Values, Autonomy, and Responsibility:

- |    |   |
|----|---|
| V1 | <b>Participate</b> effectively within groups and independently.   |
| V2 | <b>Give</b> responsibility for learning importance and continuing personal and professional development.  |
| V3 | <b>Accept</b> critical thinking, communication skills, and mathematical and statistical methods for solving many problems in other disciplines. |
| V4 | <b>Express</b> mathematical and statistical ideas orally and in writing   |

\* \* Add a table for each track (if any)





## C. Curriculum:

### 1. Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
<b>Course</b>	Required	7	21	53%
	Elective	3	9	22%
Graduation Project (if any)				
Thesis (if any)		1	10	25%
Field Experience(if any)				
Others (.....)				
<b>Total</b>		<b>11</b>	<b>40</b>	<b>100%</b>

\* Add a separated table for each track (if any).

### 2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre- Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
<b>Level 1</b>	202590-3	Theory of Statistics (1)	Required	Non	3	Program
	202592-3	Bayesian statistics	Required	Non	3	Program
	202593-3	Introduction to statistical programming	Required	Non	3	Program
<b>Level 2</b>	202594-3	Theory of statistics (2)	Required	Non	3	Program
	202595-3	Regression Analysis	Required	Non	3	Program
	202596-3	Advanced statistical algorithms	Required	Non	3	Program
<b>Level 3</b>	202597-3	Stochastic Processes	Required	Non	3	Program
		Elective(1)	Elective	Non	3	Program
		Elective(2)	Elective	Non	3	Program
<b>Level 4</b>		Elective(3)	Elective	Non	3	Program
	202699- 10	Thesis	Required	Non	10	Program

\* Include additional levels (for three semesters option or if needed).

\*\* Add a table for the courses of each track (if any)

### 3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

<https://2u.pw/o913k40>





#### 4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with program courses, according to the following desired levels of performance (I = Introduced P = Practiced M = Mastered).

Course code & No.	Program Learning Outcomes											
	Knowledge and understanding				Skills					Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	S4	S5	V1	V2	V3	V4
Theory of Statistics (1)	I	I	I		I		I		I			I
Bayesian statistics	P	P	P		P		P		P			P
Introduction to statistical programming	P	P			P		P		P			P
Theory of statistics (2)	I	I	I		I		I		I			I
Regression Analysis	I	I	I		I		I		I			I
Advanced statistical algorithms	M	M			M		M		M			M
Stochastic Processes	M	M	M		M		M		M			M
Elective(1)	P	P	P				P		P			P
Elective(2)	P	P	P				P		P			P
Elective(3)	I	I	I		I		I		I			I
Thesis	M	M	M	M	M	M	M	M	M	M	M	M

\* Add a separated table for each track (if any).

#### 5. Teaching and learning strategies applied to achieve program learning outcomes:

Describe teaching and learning strategies, to achieve the program learning outcomes in all areas.

- Lectures
- Interactive classes
- Self-learning through the website
- A rich variety of tasks and projects
- Introduce research projects in courses that promote critical thinking and the ability to seek solutions.

#### 6. Assessment Methods for program learning outcomes:

Describe assessment methods (Direct and Indirect) that can be used to measure the achievement of program learning outcomes in all areas.

The program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least once in the program's cycle).

- Written (Midterm and Final exams).
- Quizzes.
- General report.
- Homework.



- Project.
- Oral presentation of the projects. Computers software program.

## D. Thesis and Its Requirements (if any):

### 1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

1. The applicant must be a Saudi, or on an official postgraduate scholarship if he is a non-Saudi.
2. The applicant must have obtained a university degree from a Saudi university or another recognized university.
3. To be of good conduct, and medically fit.
4. To submit two scientific recommendations from professors who previously taught him.
5. Approval of his reference to the study if he is an employee.
6. The student obtains a grade of "very good" at least at the undergraduate level, and the council of the Deanship of Graduate Studies may accept those with a rating of "good high" at least the student's score of "very good" in the major's courses for the undergraduate stage.
7. The student is a graduate of the Department of Mathematics and Statistics.
8. The average of the student during his studies at the Bachelor's level 3 from 4.
9. The student's average in English is very good.
10. The student must pass the test of specialization in the department or college.

### 2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/mechanisms of the scientific supervision and follow-up)

The supervisor should be an associate professor, or two papers have been published in a journal with an impact factor.

The main supervisor must be from Taif University.

### 3. Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

## H. Student Admission and Support:

### 1. Student Admission Requirements:

In order for a student to be eligible for admission to the Master of Statistics program, the applicant must meet the following conditions:

- 1- He must have a Bachelor's degree in Mathematics from any recognized university of good academic reputation.
- 2- Must have an overall grade of C (= good) and at least a cumulative grade of B (= very good) in Mathematics courses in B.Sc.

To be qualified for both the written admission test and the oral exam organized by the Department of





Mathematics and Statistics at the time of admission.

## 2. Guidance and Orientation Programs for New Students:

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

## 3. Student Counseling Services:

(Academic, professional, psychological and social)

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level)

Displaying the department handbook on the website of the department.

- Meeting new students.
- Providing counseling to the students.
- A weekly office schedule is displayed on each faculty member's office and a total of 6 hours are specified for the students to provide them extra assistance and help in solving their academic problems.
- A follow-up committee exists in the department to look after the needs of the teaching assistant's scholarship holders and the meritorious students.

## 4. Special Support:

(Low achievers, disabled, , and talented students).

## E. Faculty and Administrative Staff:

### 1. Needed Teaching and Administrative Staff:

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	-	-	-	-	-	-
Associate Professors	-	5	-	4	1	5
Assistant Professors	-	10	-	5	5	10
Technicians and Laboratory Assistants	-	-	-	-	-	-
Administrative and Supportive Staff	-	-	-	-	-	-
Others ( specify )	-	-	-	-	-	-





## F. Learning Resources, Facilities, and Equipment:

### 1. Learning Resources:

Learning resources required by the Program (textbooks, references, and e-learning resources and web-based resources, etc.)

- A. The processes followed by faculty and teaching staff for planning and acquisition of textbooks, reference and other resource material including electronic and web-based resources:
- Texts and references are chosen by specialized committees in the department and finally approved in the departmental meeting.
  - These texts and references are made available in the general university library as hard copy and electronically through a general national library system in Saudi Arabia.
  - Through writing original textbooks or translation of some standard books by the faculty members.
  - Subscribing in the databases to serve the research purposes
- B. The processes followed by faculty and teaching staff for planning and acquisition resources for the library, laboratories, and classrooms:
- Faculty and staff members generally follow the procedures to acquire resources
  - The list of required resources and facilities are submitted their requests inappropriate forms through their department heads.

### 2. Facilities and Equipment:

(Library, laboratories, classrooms, etc.)

The list of required textbooks is approved by the college dean.

- The approved textbooks are listed and then submitted to the deanship of a library to provide them according to the institution's rules.
- The deanship followed the official processes for providing these books.
- Appropriate classrooms up to 50 students for teaching statistics courses.
- All needed classrooms are available inside the main campus.
- Appropriate laboratory up to 30 students for computational statistics courses.
- All students and staff members are covered by the medical insurance given by the governorate.
- The campus has a center of primary medical aids with a pharmacy.

### 3. Procedures to ensure a healthy and safe learning environment:

(According to the nature of the program)

All used classrooms are appropriate and safe.

## G. Program Quality Assurance:

### 1. Program Quality Assurance System:

Provide a link to quality assurance manual.



## 2. Program Quality Monitoring Procedures:

1. The Academic Programs Committee:  
Implement the periodic procedures to ensure the quality of the academic program, by collecting the information about the program using various assessment tools and analyzing these results annually to identify the strengths and weaknesses to improve performance, according to the following:
  - Analyze the results of direct measurement of the CLOs and PLOs and prepare their reports.
  - Analyze surveys results and prepare a report about its results.
  - Prepare the program's annual report.
  - Align PLOs with program graduate attributes and prepare the required reports.
  - Study the latest surrounding conditions of the program and the developments of the labor market and the extent of demand for program graduates.
  - Prepare a comprehensive annual report including strengths and shortcomings points and declare the proposals for improvement and development of the program.
2. Department Council:  
Raise the reports of the academic programs committee in the department to the council of the department in accordance with their powers and the council take appropriate recommendations and approve the periodic reviewing reports and raise them to the Dean of the College.
3. Dean of the College:  
Submit the periodic reviewing reports of the program from the Dean of the College to the Development and Accreditation Committee of the College to review reports and study recommendations as well as take actions to implement and raise that recommendations and reports to the College's Council for approval.
4. College Council:  
Approve the program's reports and raise them to the University Deanship of Development.
5. University Deanship of Development:
  - Follow-up the programs' periodic reviews with the concerned departments and provide the Academic Programs Committee with the required academic support.
  - Review reports and recommendations related to academic programs submitted from the development and accreditation committees coordinators of college.
  - Based on the submitted reports, a report must be raised to the University's Agency on the need to modify, develop or cancel the program a report to the University Agency on the need for the program to modify, develop or cancel in report light raised.
6. The University Agency for Academic Affairs and Development:  
Submit recommendations to the University Council.
7. University Council:

Raise a report on those academic programs which need to modify, developed or cancel to the University Council for appropriate decisions.

## 3. Procedures to Monitor Quality of Courses Taught by other Departments:

To be sure that the courses provides by other departments meet the needs of students in the mathematics Program, the following procedures have been done:

- Communication with other departments to ensure that the required course coverage fulfills the needs of mathematics students.
- The syllabus of the courses offered by other programs must be reviewed by the undergraduate committee of the department to ensure compliance with the program's needs.
- The department must approve the syllabus of the courses offered by the other departments.
- Courses evaluation by all stakeholders





#### 4. Procedures Used to Ensure the Consistency between within the main campus:

(including male and female sections).

The department quality assurance committee includes one staff member from all branches as a coordinator for each branch.

- Each coordinator must write a report about his branch at the end of every semester as well as an annual report.
- Follow-up the programs' periodic reviews with the concerned branches' coordinators and provide them with the required academic support.
- Review reports and recommendations related to the program which are submitted from branches' coordinators.

#### 5. Assessment Plan for Program Learning Outcomes (PLOs):

A committee was formatted to set and evaluate the learning outcomes of the general mathematics program.

- Use the National Qualifications Framework for Higher Education in the Kingdom of Saudi Arabia as the main source of information required.
- Study the learning outcomes of similar programs in different universities inside or outside Saudi Arabia.
- Taking the opinion of the advisory committee about the learning outcomes of the program.
- Taking the employers' opinion about the learning outcomes of the program.
- Align PLOs with program graduate attributes and prepare the required reports.
- Study the latest surrounding conditions of the program and the developments of the labor market and the extent of demand for program graduates.
- Set the mapping matrix of program learning outcomes with courses.
- Design a plan to generate and collect data.
- Analyze data.
- Prepare a comprehensive annual report including strengths and shortcomings points and declare the proposals for improvement and development of the program.

#### 6. Program Evaluation Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Staff members Students	Surveys	End of the academic year
Effectiveness of teaching	Students	Surveys Exams' results	During semesters
Effectiveness of assessment	Staff members	Inspection of exams according to CLOs	End of semesters
Learning resources	Students Staff members	Surveys	End of semesters
Program KPIs	Program leaders	Results of KPIs	End of the academic year

**Evaluation Areas/Aspects** (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)

**Evaluation Sources** (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.)

**Evaluation Methods** (e.g., Surveys, interviews, visits, etc.)

**Evaluation Time** (e.g., beginning of semesters, end of the academic year, etc.)





## 7. Program KPIs:\*

The period to achieve the target (\_\_\_\_) year(s).

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1. Mission and Goals	KPI-P-01	Percentage of achieved target level of KPIs of program operational plan	75% are achieved	Percentage of performance indicators that achieved the target level in the operational plan annually to the total number of targeted indicators per year	end of academic year
2. Program Management and Quality Assurance	KPI-P-02	The satisfaction of beneficiaries with the quality of community services	75% are satisfied	The rate of satisfaction of beneficiaries with the quality of community services provided by the program on a five-level scale in an annual survey	end of academic year
3. Teaching and Learning	KPI-P-03	Students' Evaluation of quality of learning in program	75% are satisfied	Average rating of the overall quality of students' learning experiences on a five point scale in an annual survey of final year students	end of academic year
	KPI-P-04	Students' evaluation of the quality of their courses	75%	Average rating of the overall students evaluation of courses on a five point scale in an annual survey	end of semester
	KPI-P-05	Completion Rate	75%	Proportion of students entering undergraduate programs who complete the program in minimum time (i.e., in the set period)	End of semesters
	KPI-P-06	First-Year Students Retention Rate	80%	Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students	end of academic year
	KPI-P-07	Students' performance in the professional and/or national examinations (if any)	75%		End of academic year
	KPI-P-08	Proportion of graduates who employed or enrolled in further study	50%	Proportion of graduates from the program who within a year of graduation are: a. employed	Beginning academic year





No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				b. enrolled in further study	
	KPI-P-09	Average Number of students in the class	30%	Average Number of students in each teaching sessions (lecture, small group, tutorial, laboratory and clinical sessions)	Beginning of semester
4. Students	KPI-P-10	Employers' evaluation of the program graduates proficiency	70%	The average rating of employers for the proficiency of the program's graduates on a scale of five levels in an annual survey	end of academic year
	KPI-P-11	Student satisfaction with the services	80% are satisfied	Student satisfaction rate for the various services offered by the program (restaurants, transport, sports facilities, academic guidance ...) on a five-level scale in an annual survey of students	end of academic year
5. Teaching Staff	KPI-P-12	Ratio of students to teaching staff	25 students per 1 teacher	Total number of full-time and full time equivalent teaching staff to the total number of students in the program	Beginning of semester
	KPI-P-13	Percentage of teaching staff distribution		Percentage of teaching staff distribution based on: a. Gender b. Branches c. Academic Ranking	end of academic year
	KPI-P-14	Proportion of teaching staff leaving the program	1.5%	Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.	end of academic year
	KPI-P-15	Percentage of publication of faculty members	80%	Number of full-time faculty members who published at least one research during the year to total faculty members	end of academic year
	KPI-P-16	Average research per faculty member	1 per year	The average number of refereed or published researches per each faculty member during the year.	end of academic year
	KPI-P-17	Average of citations in	30%	Number of citations in refereed journals per total	end of academic year





No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
		refereed journals		number of publication.	year
<b>6. Learning Resources, Facilities, and Equipment</b>	KPI-P-18	Satisfaction of beneficiaries with learning resources	75%	Satisfaction rate of beneficiaries on the adequacy and diversity of learning resources (references, journals, databases... etc) on a scale of five levels in an annual survey.	end of academic year

\*including KPIs required by NCAAA

## H. Specification Approval Data:

<b>COUNCIL /COMMITTEE</b>	Department of Mathematics and Statistics
<b>REFERENCE NO.</b>	
<b>DATE</b>	7/4/1445 H

