Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Program Specifications

BSc Microbiology
40101

National Commission for Academic Accreditation & Assessment

Program Specifications

For guidance on the completion of this template, please refer to NCAAA guidebooks.

1. Institution **UMM AL-QURA UNIVERSITY** Date of Report: **September 2015**
2. College/Department: **Faculty of Applied Science / Department of Biology**
3. Dean: **Dr. Waleed J. Altaf**
4. Insert program administrative flowchart
5. List all branches/locations offering this program Branch/Location 1. **Main campus / Makkah** _____ Branch/Location 2. _____

Branch/Location 3. _____ Branch/Location 4. _____

A. Program Identification and General Information

1. Program title and code: **BSc Microbiology (40101)**
2. Total credit hours needed for completion of the program: **134 credit hours**
3. Award granted on completion of the program: **Bachelor of Science (BSc)**
4. Major tracks/pathways or specializations within the program (eg. transportation or structural engineering within a civil engineering program or counselling or school psychology within a psychology program) **N/A**
5. Intermediate Exit Points and Awards (if any) (eg. associate degree within a bachelor degree program) **N/A**
6. Professional occupations (licensed occupations, if any) for which graduates are prepared. (If there is an early exit point from the program (eg. diploma or associate degree) include professions or occupations at each exit point) **N/A**

7. (a) New Program ☐ Planned starting date ☐

(b) Continuing Program ✓ Year of most recent major program review: **2014**

Organization involved in recent major review (eg. internal within the institution,

Accreditation review by **Submitted for accreditation by German organization ASIIN**
Other: **Departmental curriculum committee**

The program was revised by external reviewers:

(1)- Prof. Al-Zahraa Ahmed Karam El-Din
Professor of Mycology – Ain Shams University – Cairo – Egypt

(2)- Prof. Khaled Al- Ghamdi
Prof. of Biological Control – King Abdulaziz University – Jeddah – Saudi Arabia

8. Name of program coordinator or chair. If a program coordinator or chair has been appointed for the female section as well as the male section, include names of both.

Dr Hussein H. Abulreesh (Program Chair)

9. Date of approval by the authorized body (MoHE for private institutions and Council of Higher Education for public institutions).

Campus Branch/Location	Approval By	Date
Main Campus:		
1:**Makkah**	**Ministry of Higher Education**	**01 / 01 / 1402 H** **29 / 10 / 1981**
2:		
3:		

B. Program Context

1. Explain why the program was established.

a. Summarize economic reasons, social or cultural reasons, technological developments, national policy developments or other reasons.

Program Aims: This program aims to introduce students to the vast world of microbiology and its essentials applications which involves directly to the lives of humans. The program has strong practical emphasis, providing students with all basic laboratory skills required for career either in applied or research microbiology.

The program will introduce students to the basic concepts of modern microbiology (bacteriology, mycology, virology, biochemistry, microbial physiology, molecular microbiology) in the first two years. Then the third and fourth year will introduce the various applications of microbiology in the daily life (water and wastewater microbiology, medical microbiology, food microbiology, plant pathology, microbial toxicology, antimicrobial agents, environmental microbiology, industrial microbiology).

During their studies, students will be exposed to a variety of information sources and techniques and be trained in various skills, including those used in reasoning, argument and communication. Students will acquire a number of transferable skills, including: design and execution of experiments (including working in a team); accessing information; interpretation of data using statistics; computing; essay and report writing; and oral and poster presentation.

Career Prospect: Umm Al-Qura University Microbiology graduates are qualified to enter a variety of careers in academia, industry and public health bodies. Many of our students continue in a research career or find employment in universities, the Saudi Food and Drug Agency (Saudi FDA), Environmental Health Department, Public Health Laboratory, microbiological laboratories in Ministry of Agriculture, microbiological laboratories in the National Water Company, and in Research Institutes. Others have found positions in Industry (Pharmaceutical, food and dairy, Agrochemical or local bottled-water companies). Some graduates continue their training in hospital to be qualified for the Saudi Committee for the Medical Specialist licence, others opt for forensic science or the teaching profession after gaining education diploma. As scientists with developed numeracy and communication skills, our graduates also have qualifications suited to a wide variety of occupations related to the field of microbiology.

b. Explain the relevance of the program to the mission and goals of the institution.
The mission of the Department of Biology reads as “Prepare a well-qualified graduates on strong base of facts and evidences from the world of microbes and its wide applications so they are able to serve the community and able to respond to the requirements of the labor market”

As described above, the program aims clearly shows relevance to the department’s mission statement.

2. Relationship (if any) to other programs offered by the institution/college/department.

a. Does this program offer courses that students in other programs are required to take? **No**

If yes, what has been done to make sure those courses meet the needs of students in the other programs?

b. Does the program require students to take courses taught by other departments? **Yes**

If yes, what has been done to make sure those courses in other departments meet the needs of students in this program?

Some of these courses are university requirements (a total of 21 credit hours, that include Holy Quran, Islamic Culture and Arabic language) and the department has no relevance to involve in the content of these courses.

However, this program include a course offered by the Department of Chemistry (Organic Chemistry 402230-4), the Department of Biology discussed with the Department of Chemistry the needs of this course and therefore facilitated the design and course content to meet the needs of the students undertaking this program (BSc Microbiology 40101)

3. Do students who are likely to be enrolled in the program have any special needs or characteristics? (eg. Part time evening students, physical and academic disabilities, limited IT or language skills).

Yes:

Students with special needs (particularly on wheel chair / vision and hearing impaired) may not be suitable for this program

4. What modifications or services are you providing for special needs applicants?

N/A

C. Mission, Goals and Objectives

1. Program Mission Statement (insert)

The mission of the BSc Microbiology program is to provide basic education in core subjects of modern and advance Microbiology as well as intensive training according to the high standards of academic accreditation, with an emphasis on laboratory methodology, in basic and applied microbiology, and related areas for students planning careers in applied microbiology to comply with the Kingdom 2030 vision.

2. List goals and objectives of the program within to help achieve the mission. For each goal and objective describe the major strategies to be followed and list the indicators that are used to measure achievement.

Goals and Objectives	Major Strategies	Measurable Indicators
• Prepare highly qualified educators and technicians. • Develop a curriculum that is responsive to the needs of the employment market in the Kingdom 2030 vision.	• Focus on providing intensive training programs for students during the university study. • Establish cooperative relationships with governmental and private sectors.	• Views that were obtained from academic staff members for their opinion in the mission, and the proportionality of this mission with the needs and aspirations of society.
To be well connected with the community to provide all possible educational curricula that can solve problems and increase their awareness	• The participation of academic staff members in providing information and services and the establishment of lectures, symposia and meetings. • The contribution of academic staff members to work as part-time advisors for governmental and private sectors institutions	• Awareness and supporting by the academic staff members to the program and its mission
• Prepare Pure and applied research projects and publish them in well-known and respected international journals, especially for graduates who want to join the postgraduate programs in the filed of microbiology.	• Collaboration with research centers, local, regional and international, in microbiology to conduct joint research - publishing the outcome of the research projects in reputable scientific journals - to support scientific research	• Keenness of academics staff members on the sophistication in scientific research and increase the number of publications and projects in collaboration with research institutions, national and international.

	in the area.	

D. Program Structure and Organization

1. Program Description:

List the core and elective program courses offered each semester from Prep Year to graduation using the below Curriculum Study Plan Table (A separate table is required for each branch IF a given branch/location offers a different study plan).

A program or department manual should be available for students or other stakeholders and a copy of the information relating to this program should be attached to the program specification. This information should include required and elective courses, credit hour requirements and department/college and institution requirements, and details of courses to be taken in each year or semester.

Curriculum Study Plan Table

Year	Course Code	Course Title	Required or Elective	Credit Hours	College or Department
1st Year Semester 1					
	4041011	Calculus	R	4	Faculty of Applied Science / Dept of Mathematics
	4021011	General Chemistry	R	4	Faculty of Applied Science / Dept of Chemistry
	705101	English Language - General	R	4	English Language Institute
	605101	Holy Quran I	R	2	
	601101	Islamic Culture I	R	2	
1st Year Semester 2					
	4011012	General Biology	R	4	Faculty of Applied Science / Dept of Biology
	4031012	General Physics	R	4	Faculty of Applied Science / Dept of Physics
	705102	English for Science	R	4	English Language Institute
	102101	The Biography of the Prophet Mohammad (PBUH)	R	2	
	501101	Arabic Language	F	2	Faculty of Arabic Language
2nd Year Semester 1					
	4022041	Biostatistics	R	3	Faculty of Applied Science / Dept of Biology
	4012401	Introductory Microbiology	R	4	Faculty of Applied Science / Dept of Biology
	4022301	Organic Chemistry	R	4	Faculty of Applied Science / Dept of Chemistry
	605201	Holy Quran II	R	2	
	601201	Islamic Culture II	R	2	

2nd Year Semester 2					
	4012412	**Virology**	**R**	**2**	**Faculty of Applied Science / Dept of Biology**
	4012422	**Bacteriology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4012432	**Mycology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4012442	**Phycology and its Applications**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4012311	**Biochemistry**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	605301	**Holy Quran III**	**R**	**2**	
3rd Year Semester 1					
	4013421	**Antimicrobial Agents**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013321	**Haematology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013431	**Water and Wastewater Microbiology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013441	**Plant Pathology and Disease Control**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	601301	**Islamic Culture III**	**R**	**3**	
3rd Year Semester 2					
	4013452	**Microbial Physiology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013462	**Molecular Microbiology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013332	**Parasitology**	**R**	**3**	**Faculty of Applied Science / Dept of Biology**
	4013472	**Medical Microbiology**	**R**	**3**	**Faculty of Applied**

					Science / Dept of Biology
	4013342	Immunology	R	3	Faculty of Applied Science / Dept of Biology
3rd Year Summer Semester					
	4013953	Research Project	R	5	Faculty of Applied Science / Dept of Biology
4th Year Semester 1					
	4014401	Biotechnology	R	3	Faculty of Applied Science / Dept of Biology
	4014411	Petroleum Microbiology and Bioremediation	R	3	Faculty of Applied Science / Dept of Biology
	4014421	Food Microbiology	R	3	Faculty of Applied Science / Dept of Biology
	4014431	Cyanobacteria	R	3	Faculty of Applied Science / Dept of Biology
	4014441	Industrial Microbiology	R	4	Faculty of Applied Science / Dept of Biology
	4014451	Epidemiology	R	2	Faculty of Applied Science / Dept of Biology
4th Year Semester 2					
	4014462	Microbial Toxicology	R	2	Faculty of Applied Science / Dept of Biology
	4014472	Environmental Microbiology	R	3	Faculty of Applied Science / Dept of Biology
	4014482	Food Quality Control	R	2	Faculty of Applied Science / Dept of Biology
	4014492	Soil Microbiology	R	3	Faculty of Applied Science / Dept of Biology

	4014082	**Bioinformatics**	**R**	**2**	**Faculty of Applied Science / Dept of Biology**
	601401	**Islamic Culture IV**	**R**	**2**	
	605401	**Holy Quran IV**	**R**	**2**	
4th Year Summer					
	4014953	**Practical Field Training**	**R**	**4**	**Faculty of Applied Science / Dept of Biology**

2. Required Field Experience Component (if any, e.g. internship, cooperative program, work experience).

Summary of practical, clinical or internship component required in the program. Note: see Field Experience Specification
a. Brief description of field experience activity **1. Gain first-hand experience of work place environment.** **2. Acquire all the necessary skills to work in relevant work field.** **3. Apply all the knowledge gained from previous course in relevant work settings.** **4. Develop interpersonal skills / work under pressure / solve work related problems.** **Improve skills to work independently or with others.**
b. At what stage or stages in the program does the field experience occur? (eg. year, semester) **4th Year / Summer semester**
c. Time allocation and scheduling arrangement. (eg. 3 days per week for 4 weeks, full time for one semester): **Students may choose one of the following:** **(1)- Three months – training in clinical settings (hospital laboratories)** **(2)- Eight weeks – training at either (public health laboratory or food quality control laboratory or food and dairy or National Water Company companies or Saudi FDA**
d. Number of credit hours (if any) **4 credit hours**

3. Project or Research Requirements (if any)

Summary of any project or thesis requirements in the program. (Other than projects or assignments within individual courses) (A copy of the requirements for the project should be attached.)
a. Brief description

At the end of this course student should be able to evaluate the different approaches used and suggest future experiments or alternative strategies for addressing the problem. The student should be able to conversant with writing a scientific report and presenting scientific data in a clear accessible manner. The skills learnt will be applicable to problem solving exercises encountered in all types of employment.
b. List the major intended learning outcomes of the project or research task. 1. **Gain practical and theoretical knowledge about particular area of microbiology.** 2. **Work independently on the research project under the supervision of academic member of staff, and should be able to design experiments to answer the particular question posed, and critically analysed the results. There will be scope for initiative in this element of the project.** 3. **Be able to set the work in the context of work done by other experimentalists, and provide a concise summary of relevant literature.**
c. At what stage or stages in the program is the project or research undertaken? (e.g. year, semester) **3rd Year / Summer semester**
d. Number of credit hours (if any) **5 credit hours**
e. Description of academic advising and support mechanisms for students. **Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)**

f. Description of assessment procedures (including mechanism for verification of standards)

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Writing a literature review	All weeks	30%
2	Participation / discussion	All weeks	25%
3	Writing a proposal for a research project	All weeks	45%
4			
5			
6			

4. Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy

Program Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning and teaching.

The ***National Qualification Framework*** provides five learning domains. Learning outcomes are required in the first four domains and sometimes are also required in the Psychomotor Domain.

On the table below are the five NQF Learning Domains, numbered in the left column. For Program Accreditation there are four learning outcomes required for knowledge and cognitive skills. The other three domains require at least two learning outcomes. Additional learning outcomes are suggested.

First, insert the suitable and measurable learning outcomes required in each of the learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each program learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process.

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	**To know the ethics of microbiology and related areas of science**	**1. Lecture, support readings, group discussions, writing reports, preparing research papers. 2. Conducting individual tasks, practical training, field training, Talks, 3. Activities and homework**	**1-quizes, mid-term and final exams. 2-Assessment of lab reports and practical examinations. 3- Evaluating individual and group tasks, and evaluating presentations and talks. 4-Activities and homework evaluations.**
1.2	**To design methods for analyzing and solving problems in the field of microbiology and its applications**		
1.3	**To think critically in evaluating microbiological information**		
1.4	**To implement projects related to his study in microbiology program.**		
2.0	**Cognitive Skills**		
2.1	**To understand the importance of scientific research and look at the recent advances in microbiological sciences**	**1. Testing and training process 2. research project - a group discussion 3. How to resolve the problem 4. Individual and group tasks**	**1. Assessment of scientific experiments 2. Evaluating individual and group tasks 3. Witten exams 4. Evaluation of Activities and homework.**
2.2	**To prepare, explore, identify, analyze and evaluate various scientific problems and solutions.**		
2.3	**To compare and contrast the methods of scientific research and the ability to design and evaluation of scientific research**		
3.0	**Interpersonal Skills & Responsibility**		
3.1	**To involve working independently and with multi-disciplinary teams.**	**- Cooperative learning and application of scientific method in thinking by solving scientific problems. - Work independently or as part of a team. - Conducting group experiments and writing group reports. - Dividing students into groups to cooperate with each other during the laboratory practical**	**- Assessment of group projects. - Assessment of projects conducted individually.**
3.2	**To cooperate in providing scientific and technical services in various fields for all sectors**		

		sessions	
4.0	**Communication, Information Technology, Numerical**		
4.1	**To use the computer to prepare written reports, evaluate scientific data and calculations**	**- Promoting students to submit activities, homework and writing reports.**	**- Evaluating the laboratory written reports. - Evaluating activities and homework.**
4.2	**To use the internet to conduct search for published articles and books**	**Promoting students to use the World Wide Web for obtaining recent information in their field of study**	
5.0	**Psychomotor**		
5.1	**To perform basic and advanced microbiological laboratory techniques**	**Attendance and participating in all practical sessions and supervising students throughout these sessions**	**(1)- Evaluation of laboratory written reports (2)- Practical exams**
5.2	**To be able to operate laboratory instruments**		

NQF Learning Outcome Verb, Assessment, and Teaching Strategies and Suggestions

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

Program Learning Outcome Mapping Matrix

Identify on the table below the courses that are required to teach the program learning outcomes. Insert the program learning outcomes, according to the level of instruction, from the above table below and indicate the courses and levels that are required to teach each one; use your program's course numbers across the top and the following level scale. Levels: I = Introduction P = Proficient A = Advanced

	Course Offerings NQF Learning Domains and Learning Outcomes	4011012	4012041	4012401	4012412	4012422	4012432	4012442	4012312	4013421	4013321	4013431	4013441	4013452
1.0	**Knowledge**													
1.1	To know the ethics of microbiology and related areas of science	x	I	I	I	I	I	I	I	P	x	P	P	P
1.2	To design methods for analyzing and solving problems in the field of microbiology and its applications	x	x	I	I	I	I	I	I	P	x	P	P	P
1.3	To think critically in evaluating microbiological information	I	I	I	I	I	I	I	I	P	P	P	P	P
1.4	To implement projects related to his study in microbiology program.	x	x	x	x	x	x	x	X	P	P	P	P	P
2.0	**Cognitive Skills**													
2.1	To understand the importance of scientific research and look at the recent advances in microbiological sciences	I	I	I	I	I	I	I	I	P	P	P	P	P
2.2	To prepare, explore, identify, analyze and evaluate various scientific problems and solutions.	I	I	I	I	I	I	I	I	P	P	P	P	P
2.3	To compare and contrast the methods of scientific research and the ability to design and evaluation of scientific research	x	x	x	x	x	x	x	x	P	P	P	P	P
3.0	**Interpersonal Skills & Responsibility**													
3.1	To involve working independently and with multi-disciplinary teams.	x	x	I	I	I	I	I	I	P	P	P	P	P
3.2	To cooperate in providing scientific and technical services in various fields for all sectors	x	x	I	I	I	I	I	I	P	P	P	P	P
4.0	**Communication, Information Technology, Numerical**													
4.1	To use the computer to prepare written reports, evaluate scientific data and calculations	I	I	I	I	I	I	I	I	P	P	P	P	P
4.2	To use the internet to conduct search for published articles and books	I	I	I	I	I	I	I	I	P	P	P	P	P
5.0	**Psychomotor**													
5.1	To perform basic and advanced microbiological laboratory techniques	I	x	I	x	I	I	I	I	P	P	P	P	P
5.2	To be able to operate laboratory instruments	I	x	I	x	I	I	I	I	P	P	P	P	P

	Course Offerings NQF Learning Domains and Learning Outcomes	4013462	4013332	4013472	4013342	4014401	4014411	4014421	4014431	4014441	4014451	4014462	4014472	4014482
1.0	**Knowledge**													
1.1	To know the ethics of microbiology and related areas of science	P	P	P	P	A	A	A	A	A	A	A	A	A
1.2	To design methods for analyzing and solving problems in the field of microbiology and its applications	P	P	P	P	A	A	A	A	A	A	A	A	A
1.3	To think critically in evaluating microbiological information	P	P	P	P	A	A	A	A	A	A	A	A	A
1.4	To implement projects related to his study in microbiology program.	P	P	P	P	A	A	A	A	A	A	A	A	A
2.0	**Cognitive Skills**													
2.1	To understand the importance of scientific research and look at the recent advances in microbiological sciences	P	P	P	P	A	A	A	A	A	A	A	A	A
2.2	To prepare, explore, identify, analyze and evaluate various scientific problems and solutions.	P	P	P	P	A	A	A	A	A	A	A	A	A
2.3	To compare and contrast the methods of scientific research and the ability to design and evaluation of scientific research	P	P	P	P	A	A	A	A	A	A	A	A	A
3.0	**Interpersonal Skills & Responsibility**													
3.1	To involve working independently and with multi-disciplinary teams.	P	P	P	P	A	A	A	A	A	x	x	A	X
3.2	To cooperate in providing scientific and technical services in various fields for all sectors	P	P	P	P	A	A	A	A	A	x	x	A	x
4.0	**Communication, Information Technology, Numerical**													
4.1	To use the computer to prepare written reports, evaluate scientific data and calculations	P	P	P	P	A	A	A	A	A	A	A	A	A
4.2	To use the internet to conduct search for published articles and books	P	P	P	P	A	A	A	A	A	A	A	A	A
5.0	**Psychomotor**													
5.1	To perform basic and advanced microbiological laboratory techniques	P	P	P	P	A	A	A	A	A	x	x	A	x
5.2	To be able to operate laboratory instruments	P	P	P	P	A	A	A	A	A	x	x	A	x

	Course Offerings NQF Learning Domains and Learning Outcomes	4014492	4014082	4013953	4014953									
1.0	**Knowledge**													
1.1	To know the ethics of microbiology and related areas of science	A	A	P	A									
1.2	To design methods for analyzing and solving problems in the field of microbiology and its applications	A	A	P	A									
1.3	To think critically in evaluating microbiological information	A	A	P	A									
1.4	To implement projects related to his study in microbiology program.	A	A	P	A									
2.0	**Cognitive Skills**													
2.1	To understand the importance of scientific research and look at the recent advances in microbiological sciences	A	A	P	A									
2.2	To prepare, explore, identify, analyze and evaluate various scientific problems and solutions.	A	A	P	A									
2.3	To compare and contrast the methods of scientific research and the ability to design and evaluation of scientific research	A	A	P	A									
3.0	**Interpersonal Skills & Responsibility**													
3.1	To involve working independently and with multi-disciplinary teams.	A	X	P	A									
3.2	To cooperate in providing scientific and technical services in various fields for all sectors	A	X	P	A									
4.0	**Communication, Information Technology, Numerical**													
4.1	To use the computer to prepare written reports, evaluate scientific data and calculations	A	A	P	A									
4.2	To use the internet to conduct search for published articles and books	A	A	P	A									
5.0	**Psychomotor**													
5.1	To perform basic and advanced microbiological laboratory techniques	A	x	P	A									
5.2	To be able to operate laboratory instruments	A	x	P	A									

5. Admission Requirements for the program

Attach handbook or bulletin description of admission requirements including any course or experience prerequisites**.**

6. Attendance and Completion Requirements

Attach handbook or bulletin description of requirements for:

a. Attendance.
b. Progression from year to year.
c. Program completion or graduation requirements.

E. Regulations for Student Assessment and Verification of Standards

What processes will be used for verifying standards of achievement (eg check marking of sample of tests or assignments? Independent assessment by faculty from another institution) (Processes may vary for different courses or domains of learning.)

Check of sample exam papers and assignments

F Student Administration and Support

1. Student Academic Counselling

Describe the arrangements for academic counselling and advising for students, including both scheduling of faculty office hours and advising on program planning, subject selection and career planning (which might be available at college level).

(1)- Academic advisor is assigned for students to provide guidance and assistance regarding their program planning
(2)- All academic staff members will specify "office hours" for meeting students every semester
(3)- Faculty of Applied Science Course Coordinator (also Faculty of Applied Science vice dean for academic affairs) is responsible for guiding and assisting all students regarding their program planning and solving their academic problems and providing academic / non-academic counselling.

2. Student Appeals

Attach the regulations for student appeals on academic matters, including processes for consideration of those appeals.

(1)- Customize a box to receive the students' complaints and grievances
(2)- Formation of a committee to examine the complaints and grievances and to stand on the ways to solve them

G. Learning Resources, Facilities and Equipment

1a. What processes are followed by faculty and teaching staff for planning and acquisition of textbooks, reference and other resource material including electronic and web based resources?

(1)- Every academic year the University main library "King Abdullah Library" contact every single Faculty (College) within the university regarding recommending textbooks and other references for booth undergraduates and postgraduates programs offered by every single department.

(2)- All major research / reviews journals are free to access their full text through the services of King Abdullah Library via Saudi Digital Library.

1b. What processes are followed by faculty and teaching staff for planning and acquisition resources for library, laboratories, and classrooms.

(1) Classrooms within the building of the Faculty of Applied Science are fully equipped with audio/visual equipments for teaching purposes

(2) Laboratories within the Department of Biology are fully equipped with instruments / chemicals / culture media for every course intended to be delivered in the appropriate laboratory.

Academic staff member can report any damages / shortcomings of the classrooms facilities to the Faculty of Applied Science vice dean so the necessary maintenance can take place. Likewise, academic staff member and laboratory technician report to the department chair any shortcoming of the instruments / chemicals so the department chair can request maintenance or replacement through the Faculty of Applied Science vice dean of postgraduate studies and research.

2. What processes are followed by faculty and teaching staff for evaluating the adequacy of textbooks, reference and other resource provisions?

N/A

3. What processes are followed by students for evaluating the adequacy of textbooks, reference and other resource provisions?

N/A

4. What processes are followed for textbook acquisition and approval?

N/A

H. Faculty and other Teaching Staff

1. Appointments

Summarize the process of employment of new faculty and teaching staff to ensure that they are appropriately qualified and experienced for their teaching responsibilities.

- **Distinguished graduates are given the chance to compete for available job posts as (teaching assistant / demonstrators) were they will be employed in the department then they are given scholarships for M.Sc and Ph.D degrees after that they are employed as faculty members and verification of their credentials**
- **A departmental faculty application committee inspects the resumes of the applicants and checks on their experience in teaching.**
- **Applicants are interviewed by senior academic administrators**
- **Presentations on the topics of interest are made in the department and evaluated by the departmental council**

2. Participation in Program Planning, Monitoring and Review

a. Explain the process for consultation with and involvement of teaching staff in monitoring program quality, annual review and planning for improvement.

- **Current programs are reviewed annually within the divisions of the department by individual faculty members and the group as a whole.**
- **A departmental committee is formed to look into the recommendations of various divisions and to make a final proposal**
- **The revised program is discussed in the departmental council before approval.**
- **Held Meetings, dialogues and debate sessions**
- **Questionnaires are assigned for faculty members to express an opinion on the program**
- **Evaluation of questionnaires and stand on weaknesses in the program**
- **Ask for advice from colleagues in similar departments of other universities**

b. Explain the process of the Advisory Committee (if applicable)

N/A

3. Professional; Development

What arrangements are made for professional development of faculty and teaching staff for:

a. Improvement of skills in teaching and student assessment?

Workshops for various aspects of academic development are conducted frequently over the academic year

● Peer consultation in teaching is conducted over the academic year for the faculty upon their own request. **● Workshops run on a regular basis** **● Training courses to prepare faculty members** **●The participation of faculty members in distance education courses** b. Other professional development including knowledge of research and developments in their field of teaching specialty? **Workshops run by international experts are conducted frequently throughout the academic year on emerging teaching and learning strategies** **● Sponsoring grants for research and innovation in teaching and learning are offered.** **● Faculty members attend conferences, workshops and sabbatical leaves to enhance their knowledge of research in the field of teaching.** **● Involvement of faculty members in specialized courses in the methodology of scientific research and modern teaching methods**

4. Preparation of New Faculty and Teaching Staff

Describe the process used for orientation and induction of new, visiting or part time teaching staff to ensure full understanding of the program and the role of the course(s) they teach as components within it.

- **Conducting awareness workshop for the new faculty members**
- **Using a faculty handbook that introduces all university rules and regulations.**
- **All new faculties should have a mentor (an experienced member of faculty in the department) as an advisor for their first year of employment.**
- **Formation of a committee to attract distinctive competencies and experiences of visiting professors and part-time.**
- **Examine the CVs of each candidate and then chose the best ones.**

5. Part Time and Visiting Faculty and Teaching Staff

Provide a summary of Program/Department/College/institution policy on appointment of part time and visiting teaching staff. (ie. Approvals required, selection process, proportion to total teaching staff, etc.)

N/A

I. Program Evaluation and Improvement Processes

1. Effectiveness of Teaching

a. What processes are used to evaluate and improve the strategies for developing learning outcomes in the different domains of learning? (eg. assessment of learning achieved, advice on consistency with learning theory for different types of learning, assessment of understanding and skill of teaching staff in using different strategies)

- **Faculty members attend training courses conducted by specialists in the teaching and learning strategies**
- **Student course evaluations completed for all courses each year.**
- **By the results achieved for each course and to achieve the goals set for each curriculum and program.**
- **The use of modern methods of teaching and evaluation.**
- **Displaying the curriculum from time to time to update the evaluation to keep up with modern education and learning processes**

b. What processes are used for evaluating the skills of faculty and teaching staff in using the planned strategies?

- **Peer reviews**
- **Faculty self reports in course reports**
- **Student Course evaluation**
- **Questionnaires are assigned for students to express their opinion on the**

department faculty members • **Evaluation of questionnaires and stand at the level of teaching staff skills**

2. Overall Program Evaluation

a. What strategies are used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes:
(i) From current students and graduates of the program? • **Graduating students surveys** • **Alumni surveys** • **Questionnaires are assigned for current and graduated students to express an opinion on the program** • **Evaluation of questionnaires and stand on weaknesses in the program**
(ii) From independent advisors and/or evaluator(s)?. • **Self-assessment report reviewed by external experts** • **Professional experts societies assessment** • **Recruitment of consultants and making workshops debate**
(iii) From employers and/or other stakeholders. **Employers surveys**

Complete the following two tables.

1. Program KPI and Assessment Table

2. Program Action Plan Table

Program KPI and Assessment Table

KPI #	List of Program KPIs Approved by the Institution	KPI Target Benchmark	KPI Actual Benchmark	KPI Internal Benchmarks	KPI External Benchmarks	KPI Analysis	KPI New Target Benchmark
1							
2							
3							
4							
5							
6							
Analysis of KPIs and Benchmarks: (list strengths and recommendations)							

NOTE The following definitions are provided to guide the completion of the above table for Program KPI and Assessment.

KPI refers to the key performance indicators the programs used in the SSRP and are approved by the institution (if applicable at this time). This includes both the NCAAA suggested KPIs chosen and all additional KPIs determined by the program (including 50% of the NCAAA suggested KPIs and all others).
Target Benchmark refers to the anticipated or desired outcome (goal or aim) for each KPI.
Actual Benchmark refers to the actual outcome determined when the KPI is measured or calculated.
Internal Benchmarks refer to comparable benchmarks (actual benchmarks) from inside the program (like data results from previous years or data results from other departments within the same college).
External Benchmarks refer to comparable benchmarks (actual benchmarks) from similar programs that are outside the program (like from similar programs that are national or international).
KPI Analysis refers to a comparison and contrast of the benchmarks to determine strengths and recommendations for improvement.
New Target Benchmark refers to the establishment of a new anticipated or desired outcome for the KPI that is based on the KPI analysis.

Program Action Plan Table

Directions: Based on your "*Analysis of KPIs and Benchmarks*" provided in the above Program KPI and Assessment Table, list the recommendations identified below.

No.	Recommendations	Action Points	Assessment Criteria	Responsible Person	Start Date	Completion Date
1						
2						
3						
4						
5						
6						
Action Plan Analysis (List the strengths and recommendations for improvement of the Program Action Plan).						

Authorized Signatures

Dean / Program Chair	Name	Title	Signature	Date
Program Dean or Chair of Board of Trustees Main Campus				
Vice Rector				