



Umm Al-Qura University
Faculty of Applied Science
Department of Biology

Bachelor's Degree Program in Microbiology



UQU | Department of Biology

جامعة أم القرى | قسم الأحياء

**Self-Study Report
for International Accreditation**

March 2017

Self-Assessment Report for International Accreditation
Bachelor's Degree Program in Microbiology

Website: <http://uqu.edu.sa/page/ar/444>

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1. Formal Specification

1.1. General Information

Name of the program (English translation):	B.Sc. in Microbiology
Final degree:	Bachelor of Science in Microbiology
Standard period of study:	4 years, 8 semesters
Credit points (according to ECTS):	134 credit hours (KSA) – 228.5 credit points (ECTS)
Type:	Full time
Program start date:	Fall 1982
Expected intake number of students	100 students
Amount and type of fees/charges	Free of charge
Faculty/Department	Faculty of Applied Science Department of Biology
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Mail	Faculty of Applied Science Umm Al-Qura University P.O Box (715) – Makkah 21955
Re-accreditation	N/A
Last accreditation issued by	N/A
Duration of the last accreditation	-----

Faculty of Applied Science, located in Makkah (Mecca), is one of twenty one faculties that make up the Faculty System of Umm Al-Qura University. Umm Al-Qura University is a large public university in Saudi Arabia. It is considered one of the most prestigious universities in the entire Islamic world due to its contributions in various fields over many decades as well as due to its unique location in Makkah (Mecca).

The Faculty of Applied Science has taken concrete steps to enhance its scientific programs and lab as well as research facilities. It now has over 60 laboratories as well as an interactive training center that is concerned with giving students the opportunity to train at governmental sectors and private sector establishments.

The site of execution of the Degree Program in Microbiology is the Department of Biology at Faculty of Applied Science, Umm Al-Qura University in Al Abidiya located in Makkah Al-Mukarramah. The Department of Biology coordinates two degree programs: Biology and Microbiology.

1.2. Type

Studies are full time and take place on weekdays from 08:00 am to 22:00 pm. Courses can last from two semesters per year. However, the university also offers courses in an intensive eight-weeks

semester described as the summer semester. Most courses are offered every semester. All the courses details are given in the module descriptions available in the study guides. For students, 75% attendance is compulsory. Courses use study and teaching portals, smart board and whiteboard which facilitate self-study and make distance learning a possibility.

1.3. Final Degree

The university was established as the Faculty of Sharia (Islamic Law) in 1949 before being joined by new faculties and renamed as Umm Al-Qura by royal decree in 1981

The Faculty of Applied Science, the first scientific Faculty at Umm Al-Qura University, was established in 1981 and includes four departments (Physics, Mathematics, Chemistry and Biology). The faculty departments award bachelor's and master's degrees and also the Departments of Chemistry and Biology award the Ph.D. degree.

1.4. Standard period of study and credit points gained

The extent of studies required for Microbiology Bachelor degree is 134 credit hours according to Saudi system (equivalent to around 228.5 ECTS credits). Note that the system of Higher Education Saudi requires at least 120 credit hours (equivalent to 204.6 ECTS credits) for bachelor's degree.

The university must arrange the education to enable the student to complete his degree in four years of full-time study.

1.5. Program start date within the academic year and first time the program is offered

The academic year of the university starts on mid-August and ends on mid-June. The academic year is divided into three semesters. The autumn semester and the spring semester each include two periods lasting seven weeks. Microbiology Degree Program can be commenced once a year in the beginning of the academic year. The courses being offered are coordinated to ensure this. The students of Umm Al-Qura University must register each semester for courses. Education directed to Microbiology program has been offered since 1982.

2. Degree Program: Content, Concept and Implementation

2.1. Aims of the program of studies

In 1949 (1369H) King Abdul Aziz established the Faculty of Sharia (Islamic Law) in Makkah Al-Mukarramah, making it the first higher education institution in the country. It constituted the kernel of Umm Al-Qura University and its most prominent faculty. Henceforward, the establishment of higher education institutions continued. Among them, Umm Al-Qura University is distinguished by its unique location in the Holy City, and its academic reputation in the fields of Islamic studies and scientific and applied disciplines.

The existence of Umm Al-Qura University in the Holy City of Makkah gives it a distinguished character as an academic institution that serves Islam and contribute to the development of human

resources and the provision of services at the levels of both the public and private sectors in the light of the requirements of the comprehensive development plans of the country. The major objectives of the University as set by the Council of Ministers Decree number 190 on 21/7/1981 include the following:

- Provision of higher education and graduate studies to enable citizens to contribute to the development of their country in the light of Islamic principles in the following fields:
- Islamic studies
- Natural and applied sciences
- Humanities, social sciences and languages
- Contribution to enhancement of scientific research by conducting and encouraging research and establishing research centers, and suggesting means for provision and satisfaction of present-day needs.
- Preparation of specialized scientists and teachers.
- Helping other Islamic societies in the specialized education of their citizens in the different fields of knowledge.

The Faculty of Applied Science; the first scientific faculty at Umm Al-Qura University, was established in 29/10/1981 and includes four departments (Physics, Mathematics, Chemistry and Biology). The college departments award Bachelor's and Master's degrees and also the departments of Chemistry and Biology award the Ph.D. degree.

The Faculty of Applied Science has taken further steps to enhance its scientific programs and laboratories as well as research facilities. It now has over 60 laboratories as well as a training office that is concerned with giving students the opportunity to train at governmental sectors and private sector establishments.

Amplifying scientific programs, particularly those dedicated to serve the society as well as offering new Ph.D. programs to the departments of Mathematics and Physics and centers of distinction as well as creating different academic posts of specialization in tandem with a number of international research centers.

For graduation with Biology specialization, it is necessary for a student to fulfill successfully 137 credit hours in eight levels, ranging from 16 to 18 credit hours for each semester, for four years of study. For graduation with Microbiology specialization, it is necessary for a student to fulfill successfully 134 credit hours in eight levels, ranging from 16 to 18 credit hours for each semester, for four academic years.

The educational objectives of the Degree Program in Microbiology reflect the mission of Umm Al-Qura University and Faculty of Applied Science.

Table 1.1 Relationships of Mission/Vision Statements

Umm Al-Qura University			Microbiology Program (Department of Biology)
Mission Constructs	Vision	Mission	Mission
Access Learning and teaching Work force Development Community Development Diversity	Pioneering in education, scientific research and the service of the local and global society.	That the University of Umm Al-Qura, with what it has from qualified human resources, advanced infrastructure, scientific programs, research priorities, and managerial and financial systems, will become: <ol style="list-style-type: none"> 1) Trusted by the community and is its first choice. 2) A world authority in accreditation for Islamic studies (Sharia) and Arabic language. 3) House of expertise and the official reference in the issue of developing the environment of Makkah and the holy places. 4) An environment that facilitates innovation in knowledge and science, according to the established world criteria. 	Pioneering in education, scientific research and community service.

2.1.1. Aims of the Bachelor’s Degree Program in Microbiology

The objective of Microbiology program is to educate professionals in the field of Microbiology. Students should develop general skills for acquiring, analyzing and synthesizing fundamental concepts related to natural sciences and Microbiology. In addition, students develop skills for application of the gained knowledge and efficient laboratory skills. Upon completion of the courses of the Microbiology program, the students will be qualified for work in sectors such as applied industry, agriculture, medicine, food factories and quality control, education, water companies and other sectors where microbiological knowledge and skills can be applied. They are also qualified for work in research and development laboratories as well as in institutions for nature conservation.

The degree program in Microbiology offers the student's possibilities to understand the basic microbiology and related fields in order to help and serve the society. The objective of program is that the students will demonstrate adequate knowledge about the important microbiological fields. For many, an undergraduate major in Microbiology (Bachelor of Science (B.Sc. Degree)) serves as a basis for postgraduate study in the Microbiology and life sciences. Microbiology graduates have gone on to advanced graduate study, leading to careers in college or university teaching, basic and applied research, and public health. Many have entered professional programs in food safety, environmental and public health. Other graduates have gone directly into secondary (high school) science teaching, the biomedical industry, independent laboratory research, natural resources management, or environmental education.

The microbiology undergraduate degree program aims to diversely train their students, enabling graduates to pursue careers or advanced degrees in food quality control, public health, environmental sciences, research, education, industry, or governmental work. The microbiology program is designed to give students broad knowledge in all microbiological disciplines that include: molecular microbiology and biotechnology, food microbiology, water microbiology and medical microbiology, soil microbiology and environmental microbiology, industrial microbiology, bioremediation and biodegradation of pollutants. All microbiology undergraduate students must complete a minimum of 134 credit hours.

The Department of Biology at Faculty of Applied science of Umm-AlQura University aims to fulfill the following objectives:

1. Preparation of highly qualified educational and technical staff.
2. Development of courses commensurate with the scientific renaissance.
3. Staff carries out scientific research and research excellence.
4. The localization of the latest bio-technology in the field of biology and Microbiology.
5. Preparation of books and references for courses and to be reviewed from specialized organizations.
6. Encourage talented students to work as demonstrators and researcher-assistant in the future.
7. Encourage faculty staff and students to participate in the scientific conferences and symposia.

Special Goals and Objectives of microbiology Program

Students graduating of microbiology program will be able to:

Goal I - Apply the scientific process to address microbiological questions and problems.

Learning Objectives:

This skill requires students to:

- Make observations
- Identify significant open questions
- Formulate hypotheses
- Design experiments
- Learn modern laboratory techniques

Collect and document data
Use quantitative reasoning to analyze, interpret, and present data
Collaborate with others to solve problems

These activities enable hypothesis-driven experimentation and analytical thinking. This approach to knowledge forms the basis of scientific research, guides the formation, testing, and validation of theories, and distinguishes conclusions developed through scientific reasoning from those that rest on unverified assertion.

Goal II - Find, critically evaluate, and communicate information on microbiological questions.

Learning Objectives:

This skill requires students to:

Identify appropriate information sources
Comprehend and critically analyze primary, secondary, and popular scientific literature
Distinguish between supported and unsupported conclusions in a given study
Use writing to distill meaning from a collection of information sources, logically organize ideas, and construct a cogent scientific argument
Convey the scientific argument through concise written and oral communication.

These activities result in deeper more nuanced understanding of microbiological studies, their relationship to prior published work, and the formulation of future directions for a field. Graduates will be able to accurately communicate microbiological information, and the importance of underlying issues, to diverse audiences.

Goal III - Think critically and ethically about microbiological research and its societal impact

Learning Objectives:

This skill requires students to:

Understand and recognize ethical issues that arise from scientific research
Understand and recognize ethical research practices
Understand the role of science in addressing societal issues
Understand how microbiological concepts are derived from scientific research, and how further scientific advancements will support, refute or alter current theories.

These activities provide graduates with the skills necessary for informed scientific stewardship.

The skills above will be developed while students engage in course work focused on the following content:

- 1) Relationship between structure and function on different microbiological scales.
- 2) Flow of energy and matter through biological systems, from cells to ecosystems.
- 3) Flow of genetic information from storage to phenotype.
- 4) Mechanisms of inheritance.
- 5) Mechanisms of pathogenesis and immunity.
- 6) Evolution and maintenance of microbiological diversity.
- 7) Connectivity and emergent properties of complex biological networks, from molecules to ecosystems.

8) Aspects of applied microbiology and biotechnology

2.2. The skills of students upon completion of the program

Description of general and subject-specific competencies of students

Students acquire the following general abilities and skills:

- Analyzing and synthesising abilities
- Ability to apply the acquired knowledge
- Data collecting and processing skills
- Ability to exchange information, ideas, problems and solutions
- Successful teamwork skills
- Basic computing skills

Students acquire the following subject-specific skills and abilities:

- Acquired fundamental knowledge in the field of microbiology
- Application of acquired knowledge and further professional development
- Accumulating, assessing and interpreting relevant information related to different branches of microbiology
- Creating scientifically based and argumentative judgments
- Comprehension of workplace tasks
- Efficient communication skills regarding microbiology and other related disciplines

2.3. Learning outcomes of the program

Professors of the B.Sc. Program in microbiology and course teachers have participated in the definition of the learning outcomes. The requirements of the stakeholders are transmitted into the definition the learning outcomes of the degree program through research projects. Also the requirements of the postgraduate studies have been taken into account in the definition of the learning outcomes.

Description of the learning outcome:

The learning outcome is a professional with general academic education who possesses considerably broadened knowledge in comparison to the knowledge obtained in secondary education as well as integrated knowledge needed for comprehension of microbiological fundamentals. The acquired knowledge provides professional qualifications for work in microbiological laboratories and research centers.

Minimum learning outcomes:

- The knowledge of biosystem structure, organization and function at the level of a molecule, tissue, organism and population.
- The usage of basic microbiological concepts and awareness of the importance of microbiological disciplines in modern science.
- Laboratory work skills
- Independent search of information in professional publications
- The application of successful laboratory practice principles in experiment planning, conducting and control.

The Students learning outcomes of the B.Sc. Program in microbiology is defined as follows. After the completion of the Bachelor’s Degree Program in microbiology the students should be able to:

Table 2-1 : Program Learning Outcomes

Program Learning Outcomes	
Knowledge	(1)- To know the ethics of microbiology and related areas of science. (2)- To design methods for analyzing and solving problems in the field of microbiology and its applications. (3)- To think critically in evaluating microbiological information. (4)- To implement projects related to his study in microbiology program.
Cognitive Skills	(1)- To understand the importance of scientific research and look at the recent advances in microbiological sciences. (2)- To prepare, explore, identify, analyze and evaluate various scientific problems and solutions. (3)- To compare and contrast the methods of scientific research and the ability to design and evaluation of scientific research.
Interpersonal Skills & Responsibility	(1)- To involve working independently and with multi-disciplinary teams. (2)- To cooperate in providing scientific and technical services in various fields for all sectors. (3)- Bear responsibility in various situations.
Communication, Information Technology, Numerical	(1)- To use the computer to prepare written reports, evaluate scientific data and calculations. (2)- To use the internet to conduct search for published articles and books.
Psycho-motor	(1)- To perform basic and advanced microbiological laboratory techniques. (2)- To be able to operate laboratory instruments.

All students in the Bachelor’s Degree Program in microbiology have the same major subject, which included with the [Program Specification](#) and [Program Handbook](#) files.

The learning outcomes of the program are put into practice within the individual courses of the program. The learning outcomes for individual courses are defined in the [Outcome Mapping Matrix](#) file. The descriptions of learning outcomes of the courses are written by teachers of courses.

The B.Sc. degree in KSA is considered as a way to M.Sc. degree studies, introducing students to the scientific thinking and methods. The B.Sc. degree starts with general studies, e.g. general physics, general chemistry, organic chemistry, general biology and general microbiology, the portion of which is significant in the first study year. According to ASIIN’s criteria, the B.Sc. degree in microbiology consists of the following:

- 14 % General Courses,
- 5 % General sciences,
- 2 % English Language,
- 65 % Field courses,
- 3 % Bachelor’s Project, and
- 11 % Practical Training.

Table 2-2: Percentage of courses

Requirements	Type	KSA CH	C. H. %	ECST	ECST %
University	Compulsory	21	15.67	35.81	15.67%
Faculty	Compulsory	16	11.94	27.28	11.93%
Department	Compulsory	85	63.43	144.93	63.42%
English Language	Compulsory	8	5.97	13.64	5.96%
Practical Training	Compulsory	4	2.99	6.82	2.98%
Total	-	134	100	228.50	100

2.4. Job market perspectives

The fields of education of the KSA universities are defined by the Ministry of Higher Education. The Board of Umm Al-Qura University decides the total number of new entrants. The contents of the degree program are decided by Faculty Council.

The purpose of the study program is to educate students within the field of microbiology and make them competent for work in microbiology laboratories of different fields and industrial sectors as well as in research laboratories. The study program structure with its general education, theoretical and methodological courses enables students to acquire fundamentals of microbiology and natural science disciplines. This knowledge is further improved by subject-related and applicable courses included in the program. The competences and skills acquired at this level serve as the basis of fundamental knowledge necessary for continuing the educational process at master’s degree level in the field of microbiology and other closely related disciplines.

The content of the Bachelor's Degree Program in microbiology is determined on the basis of the general requirements concerning the education of microbiology, the needs and expectations of the industry and community. Microbiology-related jobs are particularly competitive, so it is valuable, and sometimes crucial, to gain practical experience in the field. Work experience demonstrates the commitment to the career area and knowledge of what is involved. Some degree courses incorporate a practical training to prepare students to the wide range of jobs they could be applied to.

The amount of employees within the microbiological research will increase during the next decade. The proportion of university graduates will increase, because the increasing demand for exploring the living microorganisms in the universe and pave the way to adapt for living in safe environment.

The courses in the Bachelor's Degree Program in microbiology involve laboratory and practical training at public health and biomedical sector in order to provide an adequate connection to the professional practice and to prepare the students to commence work in existing or foreseeable professional fields. The courses in the degree structure are also closely linked to the research conducted in the department and provide a path to post graduate studies. Practical training is included in the Bachelor's program. The total value of obligatory practical training is 6.82 ECTS credit point in the Bachelor's degree.

In the Bachelor's degree, most assignments can be included applications from the life. This assignment has a more general purpose. After completing the courses, the student is able to define and explain, what it is like to be working as an employee, and what are the basic rules in working life from the view of an employee.

2.5. Admissions and entry requirements

2.5.1. Entry requirements for Bachelor's degrees

Saudi Universities Act (2685/23 M/8) rules the entry requirements for the Bachelor's degree. According to the KSA Universities Act, the board of the university decides the number of new students to be selected each year. Rector decides annually the selection process and basis of the selection criteria of the prospective students after hearing the opinion of the faculties.

In practice student selection into the Bachelor's program for KSA secondary school examination graduates is mainly organized by a joint universities application system.

Prospective students applying in the Bachelor's degree in universities are:

1. He should have obtained a general high school certificate or its equivalent from within or without the Kingdom of Saudi Arabia.
2. His high school certificate or its equivalent should not be older than five years. The University Council may make some exceptions if convincing reasons are provided.
3. He should be a good conduct.
4. He should successfully pass any test or interview assigned by the University Council.

5. He should be medically fit.
6. He should provide permission for study from his reference, if he works in government or private sector.
7. He should satisfy any other conditions the University Council determines, announced during application.
8. He should not be dismissed from any other university for disciplinary or academic reasons. If that became clear after investigation, his acceptance shall be deemed cancelled from the day of his admission.
9. A student dismissed from the University for Academic Reasons may be enrolled in some programs that do not award a Bachelor Degree, as decided by the University Council, or whoever it delegates. This shall not be allowed for the transitional program.
10. Those who already had obtained a Bachelor Degree or its equivalent shall not be admitted to obtain another Bachelor degree. The University Rector has the right for exceptions.
11. A student registered for another university degree or below, shall not be admitted, either in the selfsame university or another.

KSA University applicants have two different quotas where they can be selected in:

1. Success in secondary school examinations;
2. Success in entrance examinations.

The entrance examinations are organized by the joint application procedure. The entrance examination is based on the KSA secondary school curriculum in Biology, Mathematics, Chemistry and physics. There are three separate examinations. Prospective students must pass the entrance examination to be selected even if there are fewer applicants than places attained. This guarantees minimum knowledge level in science of all selected students. There are no extra aptitude tests in the Bachelor's degree.

Students applying in the Bachelor's Program are not supposed to have any former work experience or industrial placements; neither do they help in the applying process for the Bachelor's Program.

2.6. Curriculum/content

The target of the curriculum work process is the production of a high-level curriculum in terms of both content and communication. The curriculum lays the foundation for teaching and the planning (individual study plans) and implementation of studies. The Dean of the Faculty and Heads of degree programs are responsible for the curriculum work.

The curriculum work ensures the production of high-quality degrees: the expertise obtained from the degree studies is based on current, key research-based knowledge in the field of microbiology and science, and on the development of general competencies as a part of the degree. The curriculum work takes into account the expertise required in the increasingly diverse and international world of work and the perspective of lifelong learning. Degree programs collaborate in curriculum work in order to secure synergy benefits as extensively as possible ([Module Handbook](#)).

The objectives of degree programs and courses are defined as learning outcomes. The learning outcomes courses are based on the mission of a given degree program. Descriptions regarding instruction (e.g. learning outcomes and number of ECTS credits) follow regulations and are realistic.

The process results in degree program and course descriptions, which are published annually in the study guide on the university web site. Publication is coordinated by the Student Affairs Office.

The quality of the process is evaluated by examining the curriculum process and degree program development. The quality indicators for the curriculum process are: the continuous development and professional relevance of curricula and degree structures, true-to-life course descriptions that follow guidelines and the publication of the study guide on schedule. Changes to study guide are handled by the faculty councils.

The executive group and the advisory group managed by the Head of the program make curriculum work processes in the program. The professors, study coordinator and students belong to the groups.

3. Structure and Modularity

The Degree Program in microbiology standard duration is four years. The academic year of the university divided into two semesters. Each semester include at least 15 weeks and three additional examination weeks.

There are general subjects in the Bachelor's studies; the student acquires general skills that are required in the major and minor subject studies. The general studies include for instance, the Holy Qur'an, Islamic Culture, Arabic language, English language, General physics and General Chemistry, General Biology and Mathematics. These studies support the major studies, in which the student improves his knowledge within the wide-ranged field of Microbiology [Study plan 37](#)

3.1. Workload and credit points

The basic unit of the studies is a credit hour. A course is scored by assessment required to pass it. To complete the studies of one academic year requires on average 1600 hours, which averagely corresponds to 36 credit hours in KSA system.

Thirty work load hours equal to approximately one credit point (ECTS), including face-to-face teaching hours as well as preparation for and taking part in the examinations.

The Degree Program is composed so that by following the study plan (Program Handbook), the degree can be completed within the standard period of study (i.e., it is possible to take 24 credits per year on average), and the maximum of 36 credits is not exceeded in any year.

If a student conducts studies in another university or educational institute in KSA or abroad, the student can request the head of the degree program to credit the studies taken elsewhere.

Still, at least 80% credits of the Bachelor's degree (including the Bachelor's Projects) have to be passed at Umm Al-Qura University.

Studies in other domestic or foreign higher education institutions can be included in the degree by application approved by the Head of Degree Program. More detailed description of the credit point system and inclusion of studies in other institutions have been presented in the University Regulations on Education and the Completion of Studies.

Table 3-1: Workload per semester Microbiology Program

Level (semester)	Credit hours	Contact hours (class hours)/week		Total Workload per week	Total workload/semester (15 weeks)	ECTS
		lectures	Lab			
1	16	15	3	55	825	27.5
2	16	14	6	56	840	28
3	15	13	6	47	705	23.5
4	16	12	12	52	780	26
5	17	13	12	55	825	27.5
6	18	13	15	59	885	29.5
7	18	13	15	59	885	29.5
8	18	12	36	74	1110	37*
Grand total	134	105	105	457	6855	228.5

(*) This workload include field training course that is provided in the summer semester after the completion of level 8 (total work load of level 8 is 660 hours, 22 ECTS)

Table 3-2: Workload per year Microbiology Program

	microbiology program			
	KSA C.H	ECTS	1 st semester	2 nd semester
1 st Year	32	55.5	16	16
2 nd Year	31	49.5	15	16
3 rd Year	35	57	17	18
4 th Year	36	66.5	18	18
Summary	134	228.5	66	68
Obligatory studies	134	228.5	134	

Table 3-3: Percentage of Courses Microbiology Program

Requirements	Type	KSA CH	C. H. %	ECST	ECST %
University	Compulsory	21	15.67	35.81	15.67%
Faculty	Compulsory	16	11.94	27.28	11.93%
Department	Compulsory	85	63.43	144.93	63.42%
English Language	Compulsory	8	5.97	13.64	5.96%
Practical Training	Compulsory	4	2.99	6.82	2.98%
Total	-	134	100	228.50	100

3.2. Educational methods

The teaching methods applied in the Degree Program in Microbiology include lectures, class discussion, videotapes, laboratory, assignments, project work, and seminars. The courses also involve group work which trains the social competences of the students.

3.2.1. Learning and teaching methods:

Teaching methods are varied and include lectures, field trips, group work, independent studies and exercises and seminars by students. Moreover, laboratory work that included with courses encourages the development of analytical and critical thinking skills of students.

The multiple purposes of laboratory work included within courses focus on carrying out experiments through scientific methods and technical skills. The general purposes of laboratory work in Biology Department included:

- Supporting or strengthening theoretical knowledge,
- Experiencing the way to build their personal knowledge, discovering and development of their psycho-motor skills,
- Teaching how scientific knowledge may be used in daily life,
- Increasing creative thinking skills,
- Gains in scientific working methods and higher order thinking skills,
- Developing communication skills,
- Developing manual dexterity by using tools and equipment;
- and allowing students to apply skills instead of memorizing.

To support the educational activities, the Deanship of Academic Development and Quality at Umm Al-Qura University provides the Teachers' training courses which is designed to improve the

quality of higher education and is available to all teaching staff at Umm Al-Qura University. Also, it provides the teaching staff with guidance, for instance, on the following issues:

- Teaching planning
- Defining learning outcomes of a study course
- Determining the content of a study course
- Deciding the appropriate methods to evaluate the achievement of the learning outcomes
- Selecting suitable methods of teaching

Starting from the first semester of 2016 academic year, the Faculty of Applied Science deanship of academic affairs will organize an annual orientation program to inform the new students about the departments, programs offered, curriculum and career prospects of each academic program. At the same time the head of the departments shall illustrates for the new students the mission, vision of the department which is in line with that of the faculty. The students should be divided into small groups each of which is academically supervised by a staff member who provide general advising such as advice on course selection and career planning.

In the field practical training courses, the student has a possibility to impact the content of his studies by having an intensive training in governmental and private sector companies / hospitals / factories.

In the field practical training course the students will work with their possible future employers, so they will have gained important work knowledge and skills necessary to help the students to obtain employment in microbiological science. At the end of the course, they will also have developed many transferable skills that make them attractive to potential employers in related area of microbiological science. The field practical training will give the students the skills which they needed to follow a career in research and development.

- The graduate students of the program will effectively join different location of the job like, in hospitals, ministries and companies that may help in the economic development in Saudi Arabia
- The program graduate students that will be able to efficiently participate in the conservation of the local environment and solving the ecological problems
- The graduate students could raise the ecological as well as the general health awareness of the community in Saudi Arabia.
- The program will prepare graduates to be ready to continue advanced research studies under the supervision of distinguished faculty that may indirectly participate in the enhancement of the economy and technological developments in Saudi Arabia.

3.3. Support and advice

Faculty of Applied Science does all possible to help and support the students throughout their studies. The students will be provided by impartial advice and information about the courses available to help them to make the right decision about their programmer of study. The students have

a different needs so, there are continuous meetings, in which the dean discuss with the vice dean of academic affairs all the difficulties (e.g. students' progress; course registrations) and how to solve it.

The Faculty supported by regular spoken and written feedback to help for their succession. Academic staff will work closely with them, reviewing their progress and providing help and support. The students can also expect to receive plenty of support if he has a disabilities or learning difficulty of any sort. With this guidance, students are able to complete their studies by following an appropriate study plan that they have prepared themselves and to graduate within the desired time. The roles and duties of study guidance personnel and units are listed in the following:

1. Head of degree program:

- Responsible for evaluation, and developing program.

2. Academic Advisor:

- Guide students to prepare their individual study plan and follow its progress.
- Advice the students to select the major and minor subjects from the viewpoint of career guidance.
- Counselling students in problems related to studies.
- Learning and provides expertise in issues involving learning and guidance, supporting other study guidance personnel.
- Help students get started with their academic studies, and guide them in preparing an individual study plan.

3. Tutoring coordinator:

- Coordinates and develops the university's peer tutoring together with faculties, Student Services and the student union.

4. Student adviser

- Student advisers are members of the teaching academic staff. They provide information and guidance in studies, see to the choice of tutors and arrange their training together with the study coordinator and take part in arranging briefings for students.

5. Professors:

- Guide students to select research topic, and support students to prepare final thesis for undergraduate and postgraduate studies.

6. Library:

- Provides guidance in information retrieval and instruction in information literacy.
- Supports services for the use of information and communication technology in studies.

At the beginning of their studies, students will be given individual study plan, which is made for the entire duration of the studies, i.e. until the B.Sc. degree is completed. Study plan is a tool that helps the students plans their studies. Its purpose is to help students to see their studies as a whole from the very beginning, and to support students in understanding the importance of pre-requisites. The aim is also to avoid delaying graduation necessarily. It also awakens students to realize their own responsibility for their studies, and motivates and incites them to make a commitment to their studies.

4. Assessment of Microbiology Major

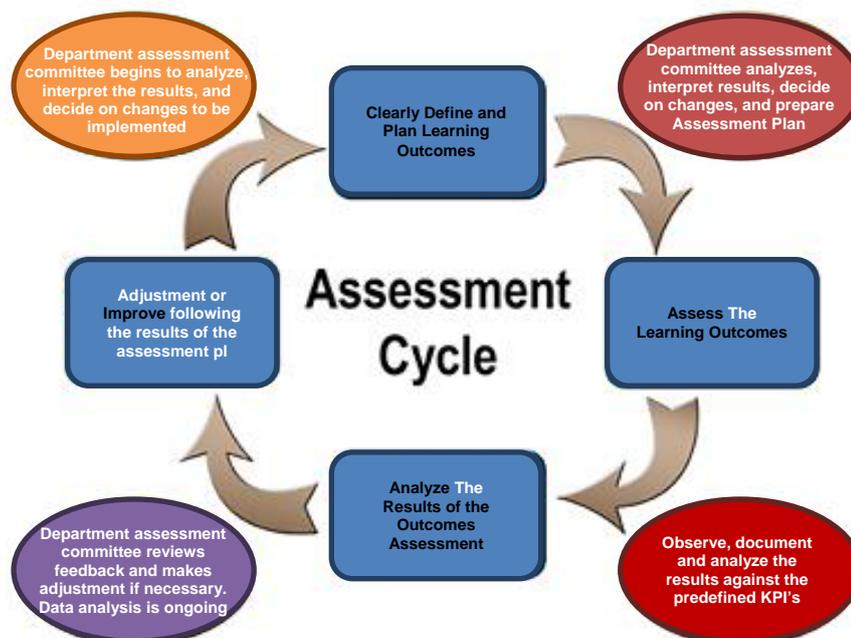
Assessment is an integral part of instruction, as it determines whether or not the goals of education are being met. Assessment affects decisions about the effectiveness of the teaching and learning process, administrative and support services, and research and community engagement activities. Through Assessment process, actually we aimed to get answers for the following questions: "Are we teaching what we think we are teaching?" "Are students learning what they are supposed to be learning?" "Is there a way to teach the subject better, thereby promoting better learning?" In addition to ensure that the expectations and standards are met in fulfilling the mission of Faculty of Applied Science.

Students learn to know not only the basic reading and arithmetic skills, but also skills that will allow them to face a world that is continually changing. They must be able to think critically, to analyze, and to make inferences. Changes in the skills base and knowledge our students need require new learning goals; these new learning goals change the relationship between assessment and instruction. Teachers make decisions periodically with students about the purpose of assessment and the content that is being assessed.

4.1. Process and steps in assessment

The process of assessment in microbiology Program is the systematic efforts to collect, analyze, and interpret information to determine the effectiveness of the teaching and learning process to ensure that the expectations and standards are met in fulfilling the mission of Faculty of Applied Science. The assessment cycle of microbiology Program includes the following steps:

Figure 4-1: Assessment Cycle of microbiology Program



Step 1: Clearly define and identify the learning outcomes

The program formulates learning outcomes that describe what students should be able to do (abilities), to know (knowledge), and appreciate (values and attitudes) following completion of the program.

Step 2: Select appropriate assessment measures and assess the learning outcomes

Multiple ways of assessing the learning outcomes are usually selected and used. Determining the criteria for successful achievement as KPI's then is used.

Step 3: Analyze the results of the outcomes assessed

The results of the assessments are analyzed and reported in a meaningful way against the predefined KPI's. A small subgroup of the Department Assessment Committee is ideally being responsible for this function.

Step 4: Adjust or improve programs following the results of the learning outcomes assessed

Assessment results are worthless if they are not used. This step is a critical step of the assessment process. The assessment process has failed if the results do not lead to adjustments or improvements in programs. The results of assessments are disseminated widely to faculty in the department in order to seek their input on how to improve programs from the assessment results. In some instances, changes are minor and easy to implement. In other instances, substantial changes and recommendations are implemented.

The action plan for improvement and action taken is provided to the assessment committee for future assessment. All action taken and results are documented to stakeholders through an annual report.

All the data regarding a particular area (program, administration, research, community engagement etc.) are gathered and reported to the appropriate committee (Curriculum Development Committee, Committee of Strategic Planning). Responsibility for achieving these goals is embedded in the planning and assessment process for each division, department, unit, and individual in the university community. In the case of successful achievement of objectives and goals in a particular area, forward planning with revised specified objectives/goals/ to achieve a revised mission in the next strategic plan is undertaken. Revising specific goal/objective based on the information learned during the assessment cycle, consistent with relevant change in the strategic plan and other areas of need, as determined by the assessment results or stakeholders input.

4.2. Overview of Faculty of Applied Science assessment plan

The Faculty of Applied Science Assessment Plan describes assessment of student learning in all undergraduate and graduate programs including the University Studies Program and University-wide data. The plan divides assessment processes and reporting into three major areas:

- 1) University Studies Program, the general education program at the University,

- 2) Undergraduate and graduate academic programs, and
- 3) University- wide assessment. Each of these processes is a part of university governance processes.

Several assessment methodologies are used to assess student learning. The Assessment Plan is developed in compliance with the Umm Al-Qura University System assessment guidelines and the criteria of the Higher Learning Commission.

The assessment committee of Faculty of Applied Science in collaboration with the study plan committee has developed its assessment plan for self-assessment and accountability for all the actions and procedures leading toward achievement of the Faculty of Applied Science mission through achievement of the B.Sc. in microbiology program outcomes and Faculty of Applied Science strategic plan goals and objectives, pertaining to mission related areas, to determine the extent of achievement and to provide input to the concerned sections for progress to comply with the quality standards of national accrediting agencies.

4.3. Components of Faculty of Applied Science assessment plan

4.3.1. Program assessment plan:

The following guide outlines best practices in program level assessment planning:

◆ *Step 1: Gather and review program related materials:*

- ✓ Catalogue, website and printed program materials
- ✓ Mission Statement (Faculty and Department or Department or Program Philosophy)
- ✓ Academic Program Profile – Essential Outcomes
- ✓ Current Assessment Plan, Program Goals and Student Learning Outcomes (SLOs)
- ✓ Discipline-specific standards and/or professional organization resources
- ✓ Recent accreditation/program review self-study reports, recommendations and action plan
- ✓ Previous Assessment Data Reports including survey data – advising, senior, and alumni; course data - evaluations, capstone/portfolio data, course embedded assignments

◆ *Step 2: Follow the steps outlined below to complete the Program Level Assessment Plan*

Working in collaboration with faculty – review the program’s mission and scope of the plan

- A. Review/create and list 4-6 Program Goals.
- B. Develop measureable program level Student Learning Outcomes for each goal.
 - ✓ Use Bloom’s Taxonomy of Cognitive Skills with Action Verb List
- C. To the degree possible, align outcomes to the five Essential Outcomes.
 - ✓ Check all that apply
- D. Brainstorm, evaluate and select appropriate measures to assess if learning outcomes have been achieved.
 - ✓ Identify Data Source (course-level assignments/rubrics) and
 - ✓ Method of Measurement
 - Use curriculum mapping techniques to identify courses which map with desired program goals and outcomes.
 - Develop manageable and sustainable data collection procedures.
- E. Identify and list Benchmarks – standards: target achievement level stating desired level of student success.

- F. Establish Timelines to develop a realistic assessment cycle. Determine Data Collection and Analysis processes.
- G. Identify Contact for data analysis; list Key Findings.
 - ✓ Appoint faculty or a committee to guide and implement assessment plan.
- H. List how Results will be Used and Disseminated and recommendations for Action Items to inform and improve academic planning process.

i. Assessment of extent of achievement of terminal program objectives

Current forms of assessment are based upon the analysis of data of students' achievements/performance in various microbiology courses, the objectives of all of which have been mapped with those of the program. Assessment of achievement of outcomes for various domains of learning, as summarized by the National Commission of Academic Accreditation and Assessment (NCAAA) have also been planned and incorporated.

ii. Assessment of program effectiveness

In addition to the assessment of achievement of terminal program outcomes, following strategies are included to strengthen the data to determine the effectiveness of the program:

- a. Data regarding the number of Faculty of Applied Science graduates securing scholarship for graduate studies.
- b. Quantitative and qualitative data program and its outcome (graduates) from external preceptors and graduating students,
- d. Benchmarking the students/graduates' achievements with those of peer national programs.

4.3.2. Plan for assessment of achievement of Faculty of Applied Science

This component of the plan aims to assess the achievement of all the Faculty of Applied Science objectives in the mission related areas, as well as in relation to quality standards:

- i. Student support and development.
- ii. Faculty of Applied Science administration.
- iii. Resources and facilities for successful program administration.
- iv. Staff recruitment, development and retention
- v. Community engagement
- vi. Research

4.3.3. Types of Assessment

i. Direct Assessment

Assessments that involve examination of student work or performance, there are various types of evaluation methods are widely used. Courses are not often evaluated by the final examination only. Assignment, laboratory work, homework, seminar etc. may contribute to the final grade of a course. Examinations are typically written including essays, and problem-solving or case-based questions. The evaluation method used in the course is described in the program handbook.

Examinations are arranged according to the curriculum. Examinations outside the schedule can also be arranged.

Table 4-1: Courses are usually evaluated on the scale:

Grade Points	Grade Meaning	Latter Grade	Percentage Grade	Grade Points	Grade Meaning	Latter Grade	Percentage Grade
4.00	Excellent+	A+	95-100	1.00	Pass	D	60-64
3.75	Excellent	A	90-94	0.00	Failure	E	< 60
3.50	Very good+	B+	85-89	0.00	Debarred	H	0.00
3.00	Very good	B	80-84	0.00	Withdrawal	W	0.00
2.50	Good+	C+	75-79	0.00	Incomplete	I	0.00
2.00	Good	C	70-74	0.00	Transferred	TR	0.00
1.50	Pass+	D+	65-69				

The maximum score for each course is 100 points, and 60 points is required to pass the course. Grades obtained in courses are listed in the university website data system, and transferred to the student website, that students use to enroll to courses and examinations. Students can view their grades and the weighted average of their studies at any time.

A field practical training is required to complete the Bachelor’s microbiology degree program. During the field practical training a member of the teaching staff will be supervising the students to discuss with them and with their supervisor at the establishment their needs and problems. The practical training is assessed by written report, a short exam, an oral discussion and finally a seminar. The peer committee is required to assess the written report. The examiners and supervisors involved in the assessment of the field practical training must have the degree of Ph.D. at least. The assessments of field practical training course is graded on the scale of 0-100. The field practical training of microbiology program is partially assessed by seminar presentation at a colloquium consisting of other Bachelor-level students and teaching staff members. Supervisor and examiners collaborates with each other in the evaluation process.

ii. Indirect Assessment

Those supplement and enrich what faculty learns from direct assessment studies.

4.4. Program Assessment

4.4.1. Concept

Program assessment is an on-going process designed to monitor and improve student learning. Faculty members, led by the curriculum development and assessment committee:

1. Develop explicit statements of what students should learn.
2. Verify that the program is designed to foster this learning.
3. Collect data that indicate student attainment.
4. Use these data to improve student learning.

Objectives of Program Assessment

- a. To Improve
 - i. Study plan, courses, and course objectives
 - ii. Instructional strategies, methodology and practice
 - iii. Student services
- b. Accountability (also measuring effectiveness of program)
 - i. Benchmark with peer program outcomes/student achievements
 - ii. Feedback from stakeholders regarding academic product and its utility
 - iii. Graduates pursuing further studies, compete for national and international scholarships
 - iv. Justification for resources being used by Faculty of Applied Science
- c. To secure accreditation
 - i. Program Accreditation by NCAAA: which will certify that the resources and facilities provided, processes of teaching and support services, and the quality and extent of students learning in terms of knowledge, skills and abilities needed for microbiology practice meet required standards for the qualifications that is offered.

4.4.2. Program assessment plan describes

- a. How will each objective be assessed?
- b. Who will collect and analyze the data?
- c. Where will it be done?
- d. How will data be collected?
- e. When and how often will it be done?
- f. Who will reflect on the results? When?
- g. How will results and implications are documented

4.5. Program development process at Faculty of Applied Science

- 4.5.1. Development and revisiting the program mission and the curriculum, according to vision and mission of the university and the Faculty of Applied Science.
- 4.5.2. Mapping the course objectives with terminal program outcomes.
 - 4.5.2.1. Mapping of course objectives with:
 - 4.5.2.1.1. Teaching and assessment methodologies.

4.5.2.1.2. Terminal objectives. Blueprinting of courses.

4.5.2.2. Mapping of course ILO's with teaching and assessment methodologies at the start of each semester.

5. Resources

5.1. Staff involved

Within the Department of Biology (Abidiya Campus), there are about 27 academic staff members working full time. The Department of Biology (Abidiya Campus) employs about 51 persons. The composition of teaching and research personnel in the Department of Biology based on a five-step category: demonstrator, lecturer, assistant professor, associate professor and professor in Table 4. The non-Saudi employment is offered annual renewable contracts of faculty members. Curriculum vita (CV) of each staff member participating in teaching is enclosed in the [Example of Staff CV](#) file.

Table 5-1: Staff contributing to the microbiology degree program (2016)

<i>Position</i>	<i>Botany</i>	<i>Zoology</i>	<i>Microbiology</i>
Professors	3	5	3
Associate Professors	2	2	3
Assistant Professors	1	2	4
Lecturers	1	0	0
Demonstrators	1	0	0
Total Academic Staff	8	9	10
Scholarships	1	4	4

5.2. Staff development

Faculty of Applied Science aims to create a good working environment for its staff, and to support their professional development and well-being at work.

Umm Al-Qura University has a deanship of quality and skills developed through which the university personnel have representation in decision-making concerning the development of the working environment and conditions. The deanship also annually revises the measures for professional development and maintaining professional expertise that determine the focus areas of personnel training at the university. The chair of the deanship is the vice rector in charge of quality and skills development. The names of other members and the committee memoranda are available on the university website <http://uqu.edu.sa/>

In addition, the university organizes staff training in utilization of computer programs, quality assurance programs and E-learning programs. The professors are also obliged to participate in management training organized by the university or the college.

Self-assessment report:

University staff members conduct annual performance and development discussions with their chairman. The parties of the discussion examine results obtained, set goals for the near future also concerning the professional development and personnel training needed. Instructions for performance and development discussions are available on the university website.

5.3. Institutional environment, financial and physical resources

5.3.1. Institutional environment

a) Description of the institution

Umm Al-Qura University was started in 1949 when the Faculty of Sharia was established, followed by Teachers' College. In 1971 the Faculties of Sharia and Education became part of King Abdul Aziz University in Jeddah and constituted its branch in Makkah.

The University of Umm Al-Qura was established in 1981 by the Royal Decree Number 39 on 30/7/1981. During the first decade of the fifteenth Hجري century the Faculty of Da'wa (Call to Islam), Arabic Language, Applied Science, Social Sciences, Engineering and Islamic Architecture, beside the Faculty of Education in Taif were established. Establishment of the Faculty of Medicine and Medical Sciences in 1997 at Makkah and Taif, and the establishment of the Faculty of Natural Sciences in Taif and the College of Community Service and Continuing Education, the number of Faculties jumped to twelve, beside the Institute for Teaching Arabic for Non-Native Speakers and the Haj Research Institute. Later on, a Community College was established in Baha.

The University offers the Bachelors, Graduate Diplomas, Masters and Ph.D degrees in Islamic Studies, Arabic Language, Education, Social Sciences, Applied Science, Medicine and Engineering. In 1986 the Custodian of the Two Holy Mosques laid the foundation stone of Al-'Abidiya campus to continue the university's educational progress in Makkah and meet the rising demand of the increasing numbers of students. In 1995 The Faculty of Sharia and Islamic studies, the Faculty of Arabic Language and the Faculty of Engineering and Islamic Architecture began the gradual move to the new campus, followed by the Faculty of Medicine and Medical Science which was established by a royal decree in 1997. Currently, there are three campuses in Makkah. The first campus is in Aziziyah, housing the university administration, the supporting deanships, the College of Community Service and Continuing Education, the Institute of Scientific Research, the Custodian of the Two Holy Mosques' Institutes for Haj Research, and Makkah Community College. The second campus is in Al-Zahir, housing the Deanship of Girls Undergraduate Studies and its facilities, and the third one is the new campus of Al-Abidiya (Main campus). Umm Al-Qura University gives a special attention to research and publication and community service. The University is playing a significant role in these fields.

The Faculty of Applied Science applies the regulations on education and the completion of studies approved by the rector. The regulations define the basic ways of action concerning the teaching and studying at the faculty and the degree programs provided by the university. The regulations are published on the university's webpage.

The university council decides the strategic long-term goals of the university teaching and education, and the degree programs provided by the university. The council also decides the number of new entrants accepted to the university's degree programs.

The university has a vice rector responsible for education affairs. In addition, the university consists of 35 faculties which the education and administration controlled by the dean of the faculty. Each degree program has an appointed head. The dean organizes a meeting between the heads of the degree programs once in every month to discuss the leading, evaluating and developing principles of the degree programs. The meeting decisions of the meetings are published on the university website which are available for the committee members. The vice rector also leads the university's supervisory and development committee for teaching appointed by the rector. The objective of the committee is to promote the internal cooperation within the university in developing the teaching customs.

The student representation in the university's administrative bodies is determined by the universities act and the administrative regulations of the university. In accordance with the statutory representation in the administrative bodies, the students also have a representation in the university's supervisory and development group for teaching.

b) Committees responsible for teaching in the microbiology program

Department of Biology is a part of the Faculty of Applied Science in Makkah Al-Mokramah Governorate ([Department Guide](#)), Umm Al-Qura University. The head of the faculty is the dean, and the highest decision-making body in the faculty is the faculty council. The dean acts as the chair of the faculty council. The dean manages the faculty and is responsible for the results of its instruction, research and societal influence. The faculty council makes decisions regarding the curricula. A study guide presents the aims and organization of the education, and the course descriptions and learning outcomes of courses in the degree.

The Faculty of Applied Science has a quality assurance unit for teaching appointed by the dean of the faculty. The unit is responsible for developing the quality of teaching and the contents of the degree programs within the Faculty. The unit has representation from each degree program provided by the Faculty.

The faculty council is responsible for supervising the quality of teaching. The council also decides the study plans and the degree requirements. In addition, the council makes the proposal to the rector concerning the entry requirements and the number of new entrants accepted to the degree programs.

The faculty is responsible for the equipment's and resources needed in teaching and research. The dean of the faculty is responsible for the resources needed in teaching. The dean also appoints the heads of the faculty's degree programs.

The heads of the faculty's degree programs are responsible for managing, evaluating and developing the degree programs. The heads of the degree programs accept the topics of the Bachelor of Science students. Each degree program of the college also has an advisory group to support the work of the head of the program.

Staff members in charge of the study courses are responsible for executing, evaluating and developing their own teaching.

5.3.2. Physical Resources

The Faculty of Applied Science has 25 classrooms prepared with smart platform and 200 computers in 9 labs and work premises for group work. The library provides services for students and staff, and for outside customers. In the faculty premises, there is a restaurant and a cafe available for students, staff and other people. One room has been reserved for students' activities.

Computer facilities:

University offers personal windows desktops for all teaching staff. Printers and scanners are available too. The computers for personal use are equipped with special programs used in research and teaching purposes. Students can use the computers that are in common use in the library area. The university's Information Services and Technology (IT) Unit is responsible for the computers, software and data systems.

Centralized services, such as the learning environments can be accessed also outside of the campus. The university offers WLAN services to enable the use of students' own computers at the campus. They get the course information, learning material and assignments of the courses through Portal websites staff members. There is also a computer labs (high quality services) to have E-learning training for staff.

Library:

Umm-Al-Qura University gates the deanship of libraries affairs which offers its services to all staff members, students and individuals.

Accordingly, deanship of libraries affairs in Umm Al-Qura University started to develop its libraries. University libraries provide information sources and storages in all its types and shapes. It also provides the academic curricula and services for beneficiaries within a proper learning atmosphere. In addition to that, the deanship of libraries affairs sought after providing a number of the electronic journals and databases for its libraries visitors so to support the academic process. Also, the deanship of libraries affairs offers various training sessions for academic staff and students, on how to use its facilities and resources.

Umm Al-Qura University Central Library includes material equipments and software appropriate to serve the attendees of the library, where there is the library furniture modern shelves of books and desks for reading and retreats Internet and retreats to read, and made available indexes through the library management and provides gateways protection for books from unauthorized use.

Sections of the Central Library:

1. Library Management.
2. Services beneficiaries.
3. The electronic catalogue.
4. Hall of free viewing and reading.
5. Periodicals.
6. References and foreign books.

Saudi Digital Library (SDL) is the largest academic gathering of information sources in the Arab world, with more than (310,000) scientific reference, covering all academic disciplines, and the continuous updating of the content in this; thus achieving huge

accumulation cognitive in the long run. Library has contracted with more than 300 global publishers.

It also provides a digital environment for various Saudi universities, and research organizations in common with it and in this environment of the benefits and advantages such as:

- One central management, manages this huge content, and constantly updated.
- Common share for the benefit of, any university would benefit other universities that are now available to the other, in any scientific field.
- Enhance the status of universities when evaluating, for academic accreditation, and through sources rich, modern, and publish the best global publishers.
- Bridging the gap between Saudi universities, where emerging universities can get
- The same service you get major Saudi universities.

Faculty of Applied Science Library:

Library lies in the Faculty of Applied Science of Al-Abidya in the ground floor on an approximate space of a 300 square meters.

Library Departments:

- Library Administration.
- Beneficiary Services.
- Electronic Index.

Library's Possessions:

Library possesses a range of various information sources estimated with a number of copies of essential textbooks in all areas of microbiological sciences.

Library Systems:

Management of the library and its indexes will be through its coding system which is considered to be among the modern systems used in the library management.

Library Services:

- Internal reading service.
- Automatic Search in the library indexes.
- Reference Services.
- Photography.
- Continuous Updating.

Internet Service:

The database includes information about both printed and electronic books as well as the storage information of printed journals. Electronic books can be accessed via a link to the library catalogue. The library provides its customers with library and information services both on-site and online. Information literacy education for the entire university is also arranged and given by the library personnel. The library is open to faculty staff, students, and general public during terms on workdays: Sun-Thu 8:00–14:00. In summer and during the holiday season the Library closes at 14:00 on each workday. There are 10 computer workstations available for the customers.

6. Quality Management and Further Development of Microbiology Program:

Quality Management has been placed top on the agenda of Umm-Al-Qura University, which established as the information technology development centre in 1996, then changed into quality and development unit in 2005. Then, the UQU is created deanship of academic development and quality assurance in 2009.

Accreditation is the process of external quality review used in higher education to scrutinize colleges, universities, and higher education programs for quality assurance and quality improvement. Teaching must be of high quality with appropriate strategies used for different categories of learning outcomes.

To meet this requirement:

1. Effective orientation and training programs should be provided for new, short teaching staff. To be effective these programs should ensure that teaching staffs are fully briefed on required learning outcomes, on planned teaching strategies, and the contribution of their course to the program as a whole.
2. Teaching strategies should be appropriate for the different types of learning outcomes the program is intended to develop.
3. Strategies of teaching and assessment set out in program and course specifications should be followed by teaching staff with flexibility to respond to the needs of different groups of students.
4. Students should be fully informed about course requirements in advance through course descriptions that include knowledge and skills to be developed, work requirements and assessment processes.
5. The conduct of courses should be consistent with the outlines provided to students and with the course specifications.

6. Textbook and reference material should be up to date and incorporate the latest developments in the field of study. Also it should be available in sufficient quantities before classes commence.
7. Effective systems should be used for evaluation of courses and of teaching.
8. The effectiveness of different planned teaching strategies in achieving learning outcomes in different domains of learning should be regularly reviewed and adjustments should be made in response to evidence about their effectiveness.
9. Reports should be provided to program coordinators on the delivery of each course and these should include details if any planned content could not be dealt with and any difficulties found in using planned strategies.
10. Appropriate adjustments should be made in plans for teaching if needed after consideration of course reports.

In order to be granted accreditation it is necessary for the program to provide evidence of good quality performance. The quality of learning and teaching has been and still central to microbiology program's planning and quality assurance processes. The focus is on quality of teaching and learning outcomes, with knowledge, skills and patterns of behaviour that are assessed within the program, and continue to be reflected in personal and professional lives after graduation. Teaching and learning is the most important consideration in our program. So that verifications and check of the quality of performance for this standard has been firmly, seriously, transparently and realistically conducted. In our program, making assessments and judgments about quality of performance in (teaching & learning) is not based on general impressions but appropriate forms of supporting evidences are considered.

The evaluation of quality is based on appropriate evidences and indicators, where a number of sources of evidence are used to assess the quality of students' learning and the effectiveness of the teaching strategies used to develop these abilities. These include things such as:

- 1- Student questionnaires about teaching effectiveness, observations of teaching by peer criticism,
- 2- Questionnaires for graduates,

3- External check assessments of the quality of students' performance on tests and assignments.

Teaching and other staff involved in the program must be committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Central importance must be attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

Program administrators and teaching and other staff must be committed to maintaining and improving the quality of the program as follow:

- All teaching and other staff should participate in self-evaluations and cooperate with reporting and improvement processes in their sphere of activity.
- Innovation and creativity should be encouraged within a framework of clear policy guidelines and accountability processes.
- Mistakes and weaknesses should be recognized by those responsible and used as a basis for planning for improvement.
- Improvements in performance should be acknowledged and outstanding achievements recognized.
- Evaluation processes and planning for improvement should be integrated into normal planning processes.
- Evaluation of the relevance of the study program in professional practice (e.g. through interviews with graduates, analysis of their professional directions or career path).

In general, professional programs should involve thorough understanding of research and theoretical knowledge in the field of study and in related areas, and develop general thinking and problem solving abilities that are applicable in any context. When the committee designing a new program, they consider not only the levels of knowledge and skill this program is intended to develop, but also the particular knowledge and skills that are necessary for preparation of our graduates to their profession. This involves both what is commonly included in comparable

programs in other, regional and international countries, and any particular requirements relevant to the Kingdom of Saudi Arabia.

In this context, the evaluation of the relevance of the study program with the professional practice and labour market has been continuously conducted. The processes for evaluation include the following measures:

- 1- Programs and courses are evaluated and reported annually with information about the effectiveness of planned strategies and the extent to which intended learning outcomes are being achieved, evidenced by course reports and program reports.
- 2- In so doing, the program and its courses learning outcomes have been guided, formulated and drafted in the five domains of learning proved by The National Commission for Academic Accreditation & Assessment (NCAAA) named (Knowledge, Cognitive Skills, Interpersonal skills & responsibility, Analytic & Communication skills and Psychomotor Skills).
- 3- Reports of stakeholders about the level of basic knowledge and skills of our internship students and graduates. Also their opinions about the compatibility of the program learning outputs with the requirements of the labour market in terms of interpersonal, communication, psychomotor analytic responsibility & cognitive skills and basic knowledge of microbiology area.
- 4- Procedures are followed for ensuring the appropriateness of learning outcomes and the extent to which they are achieved, gathered from students and graduates through surveys and interviews, discussions with teaching staff, and other stakeholders.

6.1. Quality assurance and further development

The students saw a quality assurance concept in place, which is regularly further, developed and which is designed to ensure the continual improvement of the degree program. Students and other stakeholders participate in these quality assurance activities. In General, they expected that the university is able to ascertain any failure to achieve goals and to check on the extent to which the set goals are achievable and reasonable.

Quality Assurance at Microbiology Program:

Microbiology staff members are evaluated by the administration and given annual allowances to encourage the staff members to apply their most capability and efforts in their work. There is an evaluation to each staff member done every year. This evaluation effects on the financial promotion to the staff member. This evaluation is done by the head of the department.

Department of Biology has appointed a development and quality committee to be responsible about program quality assurance. Members of the committee have been trained by attending courses and seminars on quality assurance and they use internationally accepted methods for quality assurance. The committee looks at whether improvements are being made by the implementation of the program by checking at earlier and present records.

Questionnaires about the teaching evaluation are distributed to the students for each subject of the program to give their free opinion about teaching so that the instructor can make use of it and develop his methods of teaching.

In addition, the Program committee develops and conducts the assessment processes for the program through time. The assessment process is as follows:

- Periodical review of program objectives,
- Continuous effort to improve outcome assessment,
- Evaluating, advising, and monitoring students, and
- Insuring that all students meet all program requirements.

The first major update of the microbiology program study plan took place in 1417 H (1997), where new courses were added to expand the knowledge of the students such as Yeast (401345-3, level 4); and Phycology (401242-3, level 4) ([Study plan 18](#)), the inclusion of these courses and others was mainly based on benchmark comparison of local and regional study plans for the same major and academic staff opinion survey. In 1432 H (2011), a decision was made by the higher authority of UQU to include all the BSc programs of the Faculty of Applied Science in the Preparatory Year, which meant major update of the study plan ([Study plan 33](#)).

This update saw the replacement of some course titles and content that are “dated” such as Actinomycetes (401249-3) and Biological Analysis (401322-3) in [Edition 18](#), with more recent subjects such as Molecular Microbiology (401233-3, level 6); Biotechnology (401445-3, level 7) and Research Project (401395-2, level 7). Also some course were renamed and its content

was update; i.e. General Microbiology (401141-3) ([Edition 18](#)) became Introductory Microbiology (401143-3) ([Edition 33](#)). With this update, the total credit hours BSc Microbiology program was reduced to 134 ([Edition 33](#)) compared to 145 ([Edition 18](#)), the courses update in the Study Plan ([Edition 33](#)) was based on academic teaching staff opinion, student opinion surveys and benchmark comparison of local and regional study plans. In 2014, after 4 years of being under the umbrella of the preparatory year, the Faculty of Applied Science performed a thorough evaluation of the impact of the preparatory year on its educational programs, an evaluation that based on student, teaching staff and partly stakeholders opinion surveys. The outcome of the evaluation indicated that the current application of the preparatory year would hinder the Faculty of Applied Science for achieving its goals and objectives through its educational program, thus a request was submitted to the higher authority of the university to consider the withdraw of the Faculty of Applied Science from the preparatory year. The outcome of the evaluation and the request was put before the UQU Consultancy board, and after thorough discussion, the board approved the request of the Faculty of Applied Science to withdraw from the preparatory year, and therefore an update was mandatory to the study plans of its academic programs. In this respect the BSc Microbiology study plan was updated to ([Study plan 37](#)) by the end of 1436 H (2015). The updated study plan ([Edition 37](#)) commenced in the first semester of the academic year 1437-1438 H (fall 2016).

The employment of the teaching staff is based on scientific qualifications and their development, the development of teaching skills and the variety of teaching duties, and responsibility for one's field of science and its development.

UQU provides many supporting services for teaching staff as an administrative services related to instruction, as well as technological support e.g. in setting up web-based instruction. The responsibility for these support services is shared by Student Services and Information Services and Technology, which operate within the context of University Services, and by college support services. Desire2Learn (D2L), a web-based learning environment. Information Services and Technology will be responsible for the implementation of the new learning environment and training of the personnel. (<http://el.uqu.edu.sa/>).

6.2. Instruments, Methods and Data:

During studies, students are asked to fill in several questionnaires with which they can

give feedback and tell their opinions concerning the studies and conditions in the university. At the beginning of the studies, students are asked to fill in a questionnaire concerning the progress of studies. A feedback questionnaire to students helps to evaluate.

The feedback survey is carried out annually by the Quality unit. The feedback is discussed with the program committee and personnel in charge of study guidance. The feedback combined with practical experiences will be used to develop study guidance for new students.

Biology department students compile feedback from each course at the end of each semester. The feedback is discussed with professors and course teachers and improvement suggestions are reviewed.

Monitoring of credits:

Undergraduate students of Biology Department design their studies plan at the beginning of the study, which evaluated by academic adviser. The microbiology program is designed to enable students to graduate within the standard periods (4 years).

Every semester both average and cumulative GPA were calculated automatically by the system for the student. GPA is calculated by dividing the number of points gained by the student over the total number of credit hours (units) achieved by the student. Points are calculated by multiplying the number of units for each course by the grade value.

Table 6-1: Percentage of marks, grade and value obtained by the student

95 – 100	Excellent +	A+	4
90 to < 95	Excellent	A	3.75
85 to < 90	Very good+	B+	3.5
80 to < 85	Very good	B	3
75 to < 80	Good +	C+	2.5
70 to < 75	Good	C	2
65 to < 70	Pass+	D+	1.5
60 to < 65	Pass	D	1
< 60	Failure	F	0
Absent	debarred	H	0

Calculating the Average Cumulative:

The average GPA per semester is calculated as the following equation:

$$\text{GPA} = \frac{\text{Grand total of point}}{\text{Grand total of credit hours}}$$

There is an example of calculating average GPA per the first and second semesters of the first academic year in the next tables.

Table 6-2: Calculating the grade of the first semester:

Course	Credits	Mark	Grade	Grade value	Point
General Chemistry	4	67	D+	1.5	4x1.5=6
Calculus	4	73	C	2	4x2=8
English I	4	65	D+	1.5	4x1.5=6
Holy Qur'an I	2	77	C+	2.5	2x2.5=5
Islamic culture I	2	85	B+	3.5	2x3.5=7
Total	16	-	-	-	32

$$\text{GPA} = \frac{\text{Grand Total of Point}}{\text{Grand Total of Credit hours}} = \frac{32}{16} = 2.00$$

Table 6-3: Calculating the grade of the second semester:

Course	Credits	Mark	Grade	Value Grade	Points
General Biology	4	60	D	1	4x1=4
English Language II	4	66	D+	1.5	4x1.5=6
Arabic Language	2	61	D	1	2x1=2
General Physics I	4	73	C	2	4x2=8
Prophet Biography	2	88	B+	3.5	2x3.5=7
Total	16	-	-	-	27

$$\text{GPA} = \frac{\text{Grand total of point}}{\text{Grand total of credit hours}} = \frac{27}{16} = 1.68$$

To calculate the average cumulative GPA:

$$\text{GPA} = \frac{\text{Grand total of point}}{\text{Grand total of credit hours}} = \frac{59}{32} = 1.48$$

Courses Development:

Course Development is the design of a new course or revision of an existing course to focus on what students learn and can do with that learning by the end of that course.

Microbiology program and courses are evaluated annually, and documented in reports that include information about the effectiveness of planned strategies and the extent to which intended learning outcomes are achieved. Regular practice of student assessments of teaching quality and courses were done at the end of each term using students' surveys. The objects of assessment include the expediency of the courses and a general impression of the program.

An electronic feedback questionnaire includes the expediency of the course and a general impression of the course was applied. The Quality unit and Teachers are responsible for collecting student feedback for courses.

The student survey deals with the following criteria: methods of achievement of course purposes, the Overall evaluation of the course and open feedback on the course. Answers on a scale of 1-5 (5= strongly agree, 1= strongly disagree). Teachers were allowed to added questions to the questionnaire, for collecting feedback for their own purposes, and to support the course development. Students were encouraged to give feedback by preparing course-specific questions.

Every semester the courses feedback was summarized by the Quality unit with a general reporting form. These reports are submitted to the dean of the faculty and to the quality manager before the performance and development discussions between the university management and faculties. In addition, meeting between the dean of the faculty and the head of the degree program were held to discuss the topic with the faculty concerned.

The head of the microbiology program held conversation meeting with both the teachers and the students per semester to summarizing the open feedback for each course.

Assessment of microbiology program:

To ensure the microbiology program is efficient and provide a high standard education, it has been evaluated. There are many ways for program evaluation, which are the following:

1. Competence of graduates:

Field training, which is prepared by the seventh semester of Bachelors’ students, is used to demonstrate the achieved Skills and knowledge during the entire education. The number of the students and their grades in graduated training during 2013-2016 were presented in Table 6-4.

Table 6 -4: The grades of the B.Sc. training in 2013-2016:

Grade of the B.Sc. training	A	B	C	D	In Complete	Total
2016	5	10	1	1	0	17
2015	16	15	1	0	10	42
2014	29	25	25	4	0	83
2013	24	44	20	0	0	88

Table 6-5: Final grades of the graduates in 2015-2016:

Degree program	1-1,99	2-2,99	3-4
BSc 2016	6	13	2
BSc 2015	14	26	8

2. Quantitative results of a degree program:

The number of graduates and the time in which their degree was completed are demonstrated in Table 6-6.

Table 6-6: Graduates per degree program during 2014-2016:

Year	2014	2015	2016
BSc Microbiology	53	48	113

3. Staff-student ratio:

The teaching staff/students ratio for the microbiology degree program organized by Faculty of Applied Science is presented as percent of Students per teacher per year in Table 6-7. The teaching staff members comprise of professors, associate professors, assistance professors, lecture and demonstrator.

Table 6-7: Students per teacher per year in Microbiology Program:

	2014	2015	2016
Student-staff ratio	5.11	7.23	11.3

4. Satisfaction in the education:

At the graduation the students have been surveyed for their satisfaction of the program, as part of self-assessment report. Graduate feedback is collected from all graduated students from microbiology program. The feedback is gathered together annually at the end of each semester, and the results are reported on the university level on the intranet and divided and delivered into the degree programs ([Statement of the students](#)).

7. Documentation and Transparency

7.1.Relevant regulations

The regulations mentioned below have been provided for assessment:

- General examination regulation.
- Admission regulation.

The students admit that, the regulations for the program encompassed all key stipulations for admissions, the operation of the program and graduation. The program managers explained clearly to them, all regulations were checked by the responsible ministry. These regulations are published condensed in the student handbook. At the same time, the students could know these regulations from University website.

7.2. Diploma Supplement and qualification certificate:

A transcript is a student academic history. It provides information about level, context, content and status of the studies, the success of the graduate as well as about the composition of the final grade. Also, it gives a period of registration, and degree date. The students may need the transcript for employment or for further education.

8. Equal opportunities and diversity

The Careers and Employment Service at Umm Al-Qura University promotes and celebrates this diversity both as a service provider and in its interaction with students and graduates to ensure that all students are able to access employment opportunities whilst also recognizing that some students and graduates may experience barriers when looking for employment.

Umm Al-Qura University is committed to supporting mass participation in higher education as part of its contribution to equality and social justice. The University provides quality higher education through a curriculum, which embodies the central values of equality.

Umm Al-Qura University aims to increase learning opportunities for all students especially for those who have traditionally been denied access to higher education. The Careers and Employment Services' Office commitment to equal opportunities will be established under the Deanship of Students Affairs. Umm Al-Qura University Careers and Employment Service (CES) aims to support this mission statement by promoting equality of opportunity as a provider of services to all Umm Al-Qura University students and graduates.

8.1. Access to guidance services

Umm Al-Qura University is offering services for the students and graduates.

In this regard, UQU aim to make the services disability friendly and to offer services at times to meet the needs of all students.

8.2. The Faculty's Commitment

No prospective or actual student or member of staff will be treated less favourably than any other, whether before, during or after their study or employment at Faculty of Applied Science on one or more of the following grounds, except when such treatment is within the law and determined by lawful requirements: age; colour; disability; ethnic origin; marital status; nationality; national origin; parental status; race; gender; or length or type of contract (e.g. part-time or fixed-term).

With regard to students, this policy applies to (but is not limited to) admissions, teaching, learning and research provision, scholarships, grants and other awards under the Faculty's control, student support, accommodation and other facilities, health and safety, personal conduct and to student complaints and disciplinary procedures.

The Faculty will also avoid, in the fields of employment, education and provision of goods, facilities, services and premises the use of ostensibly neutral criteria which have disproportionate adverse impact on those of a particular age; disability; ethnic origin; marital status; nationality; national origin; parental status; race; gender; or length or type of contract (e.g. part-time or fixed-term).

In order to realize its commitment, the Faculty will:

- promote the aims of this policy; be proactive in eliminating discrimination, including harassment and bullying, through training and the production and dissemination of codes of practice and guidance; have regard to its obligations under relevant legislation, including the requirement to carry out impact assessments in certain areas, and for its policies, codes of practice and guidance to mirror the same and be changed to meet the demands of new legislation; whilst acknowledging that they are not legally binding, have regard to any
- Codes of practice issued or adopted by the Commission for Equality and Human Rights; make this policy, as well as all codes of practice and guidance available to all staff and

students; regularly review the terms of this policy and all associated codes of practice and guidance.

8.3. Responsibilities

8.3.1. Faculty Council Responsibility

The Faculty Council is the main body in the Faculty dedicated to delivery of the Faculty's diversity and equal opportunities objectives. The Faculty Council is convened by the dean and holds an official meeting at least once/twice per month. The Faculty Council Terms of Reference read as follows:

The Faculty Council is responsible for the development, implementation, monitoring, prioritization and review of policies, procedures and practice to support the Faculty's Equal Opportunities Policy in relation to employees (Fellows and staff) students, visitors and others closely associated with the Faculty.

8.3.2. Departments Responsibility

Heads of program operating departments are responsible for the day to day Implementation and delivery of the department objectives for diversity and equal opportunities in their department.

8.3.3. All staff and students

This policy applies to all members of the Faculty, both students and staff, whether permanent, temporary, casual, part-time or on fixed-term contracts, to job applicants, to student applicants, current and former students, to associate members and to visitors to the Faculty.

These members of the Faculty have a duty to act in accordance with this policy, and therefore to treat colleagues with dignity at all times and not to discriminate against or harass other students or members of staff, whether junior or senior to them.

The Faculty expects all its staff and students to take personal responsibility for familiarizing themselves with this policy and to conduct them in an appropriate manner at all times to respect equality of opportunity for all staff, students, applicants and visitors. The Faculty regards any breach of this policy by any employee(s) or student(s) as a serious matter to

be dealt with through its agreed procedures and which may result in disciplinary action and possibly dismissal.

8.3.4. Complaints

Faculty of Applied Science takes seriously any breach of this policy. Disregard of this policy may result in disciplinary action up to and including dismissal. The Faculty encourages any prospective or current student or member of staff who has a complaint concerning a breach of this policy to bring such a complaint to the Faculty. Any member of the Faculty may use the grievance procedures given in the Student Handbook, the Staff Handbook and the Notes for New Fellows to complain about discriminatory conduct. The Faculty is concerned to ensure that staff feel able to raise such grievances and no individual will be penalized for raising such a grievance unless it is untrue and made in bad faith.

8.4. Corrective Procedures

8.4.1. Discipline & Monitoring

Any employee or student who harasses any other employee or student on any of the grounds covered in this Policy will be subject to the relevant Faculty disciplinary procedure. In serious cases, such behaviour will be deemed to constitute gross misconduct and, as such, will result in summary dismissal in the absence of mitigating circumstances.

Monitoring of the Equal Opportunities Policy is the responsibility of the Faculty Council.

8.4.2. Positive Action

Should inequalities become apparent, as a result of the Faculty's monitoring procedures, positive action will be taken to redress the imbalance, including such measures as:

1. Advertising jobs in ethnic or female interest publications, as appropriate.
2. Introducing assertiveness training.
3. Introducing English language training.
4. Encouraging under-represented groups to apply for suitable training posts.
5. Making contact with disabled people via the local Job Centre.

Appendices:

- (1)- [Department Guide](#)
- (2)- [Program Handbook](#)
- (3)- [Module Handbook](#)
- (4)- [Program Specification](#)
- (5)- [Outcome Mapping Matrix](#)
- (6)- [Statement of the students](#)