Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: ..AL-Qasim Green University.

Faculty/Institute: .Collage of biotechnology

Scientific Department: .Applied biotechnology

Academic or Professional Program Name: ... biotechnology.

Final Certificate Name: .....B.Sc. in biotechnology

Academic System: semester

Description Preparation Date: 20/1/2024

File Completion Date: 20/2/2024

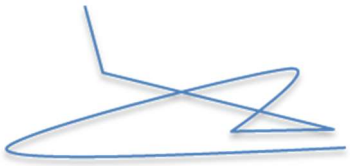
Signature:

Head of Department Name:

Assistant Prof.

Dr.Zainab Mohammed Jassim

Date:20/2/2024



Signature:

Scientific Associate Name:

Prof..Dr.Haider Shkhair

Date: 20/2/2024

The file is checked by: Murtadah Jadoaa

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 2024/2/22

Signature:

Approval of the Dean

1. Program Vision

The establishment of this department contributes to imparting the scientific knowledge necessary to keep pace with the rapid scientific development of an important branch of health sciences, which is genetic engineering, which in a relatively short time has become the pillar of scientific development in developed countries, while our Arab world still lacks expertise and applications in this field. Therefore, it is hoped that This department implements an educational system aimed at developing the applied scientific capabilities and skills of individuals interested in the field of genetic engineering

2. Program Mission

the department has established a road map and developed strategic plans to organize and manage the department in a way that makes the level of the scientific department parallel to its counterparts in the world, which leads to the graduation of competent cadres that support both academic and professional institutions alike. The Deanship of the College also studied all the standards of quality and reliability, such as choosing the latest curricula, using modern educational methods, rehabilitating classrooms, equipping laboratories with the latest equipment, and urging teachers to adopt international quality standards in teaching and make them a very important priority to ensure the quality of the scientific level in this college.

3. Program Objectives

1. Providing students with a broad understanding of the specialty.
2. Providing students with a sound foundation in basic and engineering principles in the field of biotechnology
3. Meeting the needs and aspirations of individuals and the labor market by working to match education to these needs.
4. Graduating high-quality students with the understanding, knowledge, skill, and personal qualities to carry out jobs related to the specialty of biotechnology and genetic engineering, as well as in the field of scientific research.
5. Enabling students to apply theoretical skills in the field of work
6. Enabling students to conduct research in the industrial, medical, and agricultural fields in accordance with the academic program

7. Providing an educational environment that meets academic requirements to enable graduates of the department to join scientific institutions related to biotechnology.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

NO

5. Other external influences

Is there a sponsor for the program?

NO

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements Al Qasim Green University	34	132	he percentage of theoretical hours is 72% Percentage of practical hours 28%	**Basic course**
College Requirements Biotechnology	**Yes**			
Department Requirements Applied biotechnology	**Yes**			
Summer Training	**NO**			
Other				

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

1. Program description

2	**2**	Cytology	**BTGE21-CB**	
2	**2**	Plant tissue	**BTGE21-PlAn**	
2	**2**	Molecular biology	**MoBi- BTGE21**	
2	**2**	An animal saddled him	**BTGE21-ANHi**	
2	**2**	General microbiology I	**BTGE21- MbI**	
2	**2**	Biochemistry I	**BTGE21-Bch**	
2	**2**	An animal saddled him	**BTGE22-AnPh**	
2	**2**	Biochemistry II	**BTGE22-BchII**	
2	**2**	General heredity	**BTGE22-Geg**	
2	**2**	Microbial inheritance	**BTGE22-MG**	
2	**2**	General Microbiology II	**BTGE22-MbII**	
2	**2**	Anatomy of a plant	**BTGE22-PlPhII**	
2	**2**	**Virology**	**BTGE31-Vi**	
2	**2**	**Immunology**	**BTGE31-Im**	
2	**2**	**Cloning vector**	**BTGE31-ClVe**	
2	**2**	**Food microbiology**	**BTGE31-FMb**	
2	**2**	**Molecular genetics**	**BTGE31-MoGe**	
2	**2**	**Applications of molecular techniques**	**BTGE32-ApMoTe**	
2	**2**	**Enzymes**	**BTGE32-En**	
2	**2**	**Genetic attack**	**BTGE32-GE**	
2	**2**	**Industrial microbiology**	**BTGE32-InMi**	
2	**2**	**Medical microbiology**	**BTGE32-MeMi**	

	2	2	Genes and diseases	GeDi-BTGE41	
	2	2	Bio separation	BiSep -BTGE41	
	2	2	bio informatics	Binfo- BTGE41	
	2	2	Animal tissue culture	AnTiCul-BTGE41	
	2	2	Nano Bio Technology	NaBiTe-BTGE41	
	-	1	Graduation research project-I	RePro-BTGE41	
	2	2	Human heredity	HuGe-BTGE42	
	2	2	Protein engineering	PrEn-BTGE42	
	2	2	Chemistry and diseases	ChDi-BTGE42	
	2	2	Sensors and biochips	BiseBich-BTGE42	
	2	2	Genetically modified organisms	GMO-BTGE42	
	2	-	Graduation Research Project-II	ReProII- BTGE42	

7.

8. Expected learning outcomes of the program

Knowledge

Adding the necessary scientific knowledge to keep pace with the rapid scientific development in the field of biotechnology

A2- Providing the academic and scientific community with expertise and applications in this field

A3- Implementing an educational system aimed at developing the applied scientific capabilities and skills of individuals interested in the field of biotechnology

Skills

The program's skill objectives

B1 - Work in many medical, industrial, agricultural and environmental fields

B2 - Work in the security and military fields

B3 - Working as researchers in various biotechnology specializations

Ethics	
Developing students' abilities to share ideas	
Discussion	

9. Teaching and Learning Strategies

Explaining the scientific material to students in detail.

2- Students' participation in solving mathematical problems

3- Discussion and dialogue about vocabulary related to the topic

10. Evaluation methods

1- Practical tests

2- Theoretical tests

3- Reports and studies

11- Faculty Members NOT All are Fixed on university staff

ت	Lecture staff	General specialize	Fine specialize
1.	أ. د. علياء سعد عبد كركوش	biotechnology	Biotechnology and molecular genetics
2.	ا.م.د داليا صادق مهدي	chemistry	organic chemistry
3.	أ.م.د. زينب محمد جاسم	biology	Microbial genetics
4.	ا.م .د فاخر رحيم حميد	Agriculture science	Plant protection/fungi and plant diseases
5.	ا.م.د ايمان فاضل عبد الحسين	biology	Medical microbiology
6.	أ.م.د. حيدر تركي الموسوي	biology	Genetic engineering and biotechnology
7.	م. محمد شوكت كاظم	Education/biology	Biotechnology
8.	ا.م.د. محمد يحيى هادي	Physics	Nuclear physics
9.	م. مرتضى محمد حسين	Education/biology	Biotechnology
10.	م. مخلد علي زبالة	Education/physics	Nanotechnology – nanotechnology
11.	م. نوفل هادي حسن	Education/arabic	Methods of teaching the Arabic language

12.	م. شروق فلاح حسن	/biology	Medicinal plants
13.	م.احسان علي عبد الرضا	Education/biology	Microbiology
14.	م. نور عماد كريم	Material engineering	Plastics
15.	م. حسن علي تمر	Plant protection	Plant protection
16.	م.م قحطان بربر كاظم	law	Public law
17.	م.م.اغراس صباح نوار	Applied sciences/biochemical technologies	Biotechnology
18.	م.م.ضحى محسن لايج	veterinary medicine and surgery	Sciences/human anatomy/tissues and embryos
19.	م.م.حسن نصيف جاسم	Literature/English language	English language and literature
20.	م.م.زهراء سامي محمد	biology	Biotechnology
21.	ا.م.د.مريم صباح ناصر	Life sciences/biotechnology	Microbial inheritance
22.	م.م.ايمان وهاب كاظم	Life sciences/microbiology	Life/animal sciences
23.	م.م.محمد رحمن عبود	political science	Local governments and administration
24.	م.م.ميس حسن	Biotechnology	Medical biology
25.	م.م. دعاء حامد صالح	Chemistry Science	Chemistry Science
26.	م.د. علي جليل عبيد	Biology /microbiology	Life sciences/microbiology
27.	م.د. مصطفى علي غازي	Science in nursing	Pediatric nursing
28.	م.م. زينب زيدان مطشر	Education/biology	Zoology
29.	م.م. رواء عامر حميد	Education/Physics	Physics
30.	أ.د. عباس كاظم عبد علي	biology	Microbiology/Viruses
31.	م. رسل جبار عباس	computer Sciences	computer Sciences
32.	م.م.عبير فاضل محمد	Chemistry Science	analytical chemistry

Professional Development

General and qualifying transferable skills (other skills related to employability and personal development).

D1- Utilizing the characteristics of living organisms to produce biological materials.

D2- Achieving maximum industrial, agricultural, and therefore economic benefit from living organisms

D3- Improving the characteristics and genetic characteristics of living organisms, taking into account **D4- Preserving the basic characteristics of these organisms and their diversity and not disturbing the natural biological balance**
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Professional development of faculty members
Teamwork: Working within the group effectively and actively. B - Time management: Managing time effectively and setting priorities with the ability to work organized by appointments. T- Leadership: The ability to direct and motivate others. D- Independence at work

1. **Acceptance Criterion**
The acceptance criterion depends on the average (100%)

2. **The most important sources of information about the program**
1- Resources and books in the library 2- Research and periodicals published in the specialty 3- The Internet

3. Program Development Plan
1- Updating the curricula in line with scientific development in the same field in reputable international universities 2- Holding seminars and conferences in the field of specialization to exchange scientific and practical experiences. 3- Involving students in gathering lectures and scientific laboratories. 4- Using modern teaching methods

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
SECOND 1	BTGE21-CB	cytology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE21-PlAn	Plant tissue	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	MoBi- BTGE21	Molecular biology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE21-ANHi	An animal anatomy	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE21- MbI	General microbiology I	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE21-Bch	Biochemistry I	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
SECOND2	BTGE22-AnPh	An animal physiology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE22-BchII	Biochemistry II	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE22-Geg	General heredity	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE22-MG	Microbial inheritance	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE22-MbII	General microbiology I	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
third1	BTGE31-Vi	Virology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE31-Im	Immunology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE31-ClVe	Cloning vector	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE31-FMb	Food microbiology	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE31-MoGe	Molecular genetics	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
third2	BTGE32-ApMoTe	Applications of molecular techniques	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE32-En	Enzymes	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE32-GE	Genetic attack	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

	BTGE32-InMi	**Industrial microbiology**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE32-MeMi	**Medical microbiology**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE32-ApMoTe	**Applications of molecular technique**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
FOURTH 1	**GeDi-BTGE41**	**Genes and diseases**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BiSep -BTGE41	**Bio separation**	**Basic**												
	Binfo -BTGE41	**bio informatics**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	AnTiCul-BTGE41	**Animal tissue culture**	**Basic**												
	NaBiTe-BTGE41	**Nano Bio Technology**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
FOURTH 2	HuGe-BTGE42	**Human heredity**	**Basic**												
	PrEn-BTGE42	**Protein engineering**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

	ChDi-BTGE42	**Chemistry and diseases**	**Basic**	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BiseBich-BTGE42	Sensors and biochips	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	A1
	GMO-BTGE42	Genetically modified organisms	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	A1

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

Course Description Form

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the program description.

1. Educational institution	College of Biotechnology
2. Scientific Department / Center	Department of Applied Biotechnology
3. Name / password of the teacher	General/theoretical microbiology
4. Forms of attendance available	classrooms
5. Chapter / Sunnah	2023 - 2024
6. Number of study hours (alcohol)	2
7. Date of preparation of this description	4/5/2024

8- Course Objectives

1- Encouraging scientific research and providing students with basic skills in general

2- microbiology techniques and its relationship to biotechnology.

3- Providing the community with holders of primary degrees (Bachelor's degrees) who are qualified to work as researchers in various research fields that keep pace with scientific progress.

Contributing to solving scientific problems that contribute to serving the country's development plans.

..4- Enriching research projects for the final stage and developing the spirit of research, conclusion, and competition in annual conferences

4- Preserving the environment, disposing of

5- waste using biotechnology, and searching

6- for alternative energy sources.

The department aims to employ scientific knowledge in producing and solving health problems, as well as dealing with microorganisms in the medical, pharmaceutical, immunological, and gene therapy fields using genetic engineering techniques...

10-Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Adding the necessary scientific knowledge to keep pace with the rapid scientific development in the field of microbial genetics and its role in the development of biotechnology.

A2- Providing the academic and scientific community with expertise and applications in this field

A3- Implementing an educational system aimed at developing the applied scientific abilities and skills of individuals interested in the field of microbial genetics and transferring those applications to the labor market

B - The skills objectives of the course.

B1 - Work in many medical, industrial, agricultural and environmental fields

B2 - Work in the security and military fields

B3 - Work as researchers in various general microbiology applications in the field of biotechnology

Teaching and learning methods

1- Explanation and clarification
2- How to display the form
3- Lecture method
4- Self-learning method

Evaluation methods

1- Practical tests
2- Theoretical tests
3- Reports and studies

Emotional and value goals

C1- Observation and perception
C2- Analysis and interpretation
C3- Conclusion and evaluation
C4- Preparation and evaluation

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	4	The student will be able t understand genetics in general and learn about its scientific and practical applications in the field o biotechnology	introduction to the co and the study of genet	Power lectures	Class discussions and random oral question s end with the first exam in the fifth weel
the second	4	The student is able to pres his results and understand application mechanism of genetics in the field of biotechnology	Cellular reproduction Model Genetic Organisms; Cells & chromosomes, -Mitos &Meiosis, an introduction to some model research organisms	point. point	

the third	4		Mendelian Genetics: Monohybrid crosses	With the use of laboratory to a the theoretical as and learn the pract applications of scientific materia the field biotechnology	
the fourth	4		Mendelian Genetics: Dihybrid and Trihybr crosses	Power lectures	
Fifth	4		Sex Determination an Sex Linkage		
VI	4		Mendel Modified: Incomplete dominanc lethal alleles, and multiple alleles		
Seventh	4		Modified Ratios: Gen Interactions		
VIII	4		Quantitative Traits, Genetic Testing, Quantitative Genetics		
Ninth	4	The student will be abl understand genetics in ge and learn about its scie and practical application the field of biotechnology	Linkage, crossing ove and chromosome mapping; Linkage, recombination & crossing over		
The tenth	4		DNA Structure, Mitochondrial DNA, DNA replication, Ge Expression: RNA Processing		
eleventh	4		Gene Expression: Translation, Control o Gene Expression in Prokaryotes, Control Gene Expression in Eukaryotes		
twelveth	4		Molecular Genetics: Molecular Genetics: and DNA cloning, Blotting and Probing		
Thirteenth	4		Mutations, Chromoso Mutations: Altered Chromosome Numbe		
fourteenth	4		The Human Genome Project and Functiona Genomics		
Fifteenth	4		Population and Evolutionary Genetic		

2. Course Evaluation
1- Practical tests 2- Theoretical tests 3- Reports and studies

3. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	There are no prescribed books, but lectures prepared by the subject professor
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

5-. Course objectives

1- Encouraging scientific research and providing students with basic skills in general microbiology techniques and its relationship to biotechnology.

2- Providing the community with holders of primary degrees (Bachelor's degrees) who are qualified to work as researchers in various research fields that keep pace with scientific progress.

3- Contributing to solving scientific problems that contribute to serving the country's development plans

4- Enriching research projects for the final stage and developing the spirit of research, conclusion and competition in annual conferences

5- Preserving the environment, disposing of waste using biotechnology, and searching for alternative energy sources.

D - General and qualifying transferable skills (other skills related to employability and personal development).

D1- Employing the characteristics of living organisms, not the production of biological materials.

D2- Achieving maximum industrial, agricultural and thus economic benefit from living organisms

D3- Improving the characteristics and genetic traits of living organisms, taking into account

D4- Preserving the basic characteristics of these organisms and their diversity and not disturbing the natural biological balance