

**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:

Final Certificate Name:applied biotechnology.....

Academic System:

Description Preparation Date: 20/1/2024

File Completion Date: 20/2/2024

Signature:

Head of Department Name:

Assistant Prof.Ahmed Obaid Hussain

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	Two	141		
College Requirements Biotechnology				
Department Requirements Applied biotechnology				
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-PIAn
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-PIPhII

2	2	Virology	BTGE31-Vi
2	2	Immunology	BTGE31-Im
2	2	Cloning vector	BTGE31-CIVe
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

Learning Outcomes Statement 1

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

Learning Outcomes Statement 2

Learning Outcomes 3

Learning Outcomes Statement 3

Ethics

Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Methods A. Cognitive goals

- a. An ethical responsibility.
- b. An ability to communicate effectively.
- c. The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- d. A recognition of the need for and an ability to e
 - a. An ability to apply knowledge of mathematics, science, and engineering.
 - b. An ability to design and conduct experiments as well as to analyze and interpret data.
 - c. An ability to design a system, or components, or process to meet desired needs.
 - d. An ability to function on multi-disciplinary teams (multi-disciplinary teams mean teams of individuals with similar educational backgrounds focusing on different aspects of a project as well as teams of individuals with different educational backgrounds).
 - e. An ability to identify, formulates, and solves engineering problems.
 - f. An understanding of professional engage in life-long learning (this includes teaching students that the underlying theory is important because the technology changes, coupled with enhancing their self-learning ability)..

10. Evaluation methods

1- Practical tests

2- Theoretical tests

3- Reports and studies

-11 Faculty Members			
Fine specialize	General specialize	Lecture staff	ت
Pathogenic bacteria	Life sciences / microbiology	أ.د قاسم نجم عبيد	1
Immunity	Life sciences / microbiology	أ.د حيدر شخير عبيس	2
Animal – animal physiology	Life sciences	أ.د ندى سعد ناجي	3
Animal tissue	Life sciences	أ.د احمد عبيد حسين	4
Partial fungai inheritance	Life sciences	أ.د رجاء عبدالرزاق عباس	5
Rhetoric	Literature	أ.د احمد جاسم مسلم	6
Partial biotechnology	Life sciences	أ.د صالح عبد المهدي كاظم	7
Animal- animal physiology	Life sciences	أ.م.د عباس عبد شرفان	8
Microbiology genetics	Life sciences	أ.م.د مهند جواد كاظم	9
Nano biochemistry	Chemistry	أ.م.د محمد جابر خليف	1
Microbiology	Life sciences	أ.م.د شيماء عبيد حسون	1
Biocultural	Life sciences	أ.م.د عماد هادي حسين	1
Molecular medical genetics	Genetic engineering and biotechnology	أ.م.د محمد طالب حسن	1
Molecular immunology	Medical microscopy biology	أ.م.د نكتل فائز ناصر	1
Nuclear medical genetics	Physics sciences	أ.م.د أنفال علي شاکر خضير	1
Biological resistance	Plant diseases	أ.م.د علي فاضل رزوقي	1
Partial inheritance	Biotechnology	أ.م.د ناظم مشتاق هاشم	1
Microbiology techniques	basic sciences	أ.م.د نوار هادي ياسر	1
Plant tissue culture	Plant production	أ.م.د.حلا جمعة عصري	1
Animal – tissue and physiology animal	Biology	م.د. شيماء عبد الجاسم عبد زيد	2

Analytical chemistry	Chemistry	م.د. زينب حيدر موسى	2
Partial viruses	Biology	م. مها ديكان عباس	2
Animal physiology	Animal	م. امير جواد هادي	2
Chemistry	Biochemistry	م. فرح سلام دعبول	2
Animal breeding and improvement	Animal production techniques	م. رزاق ناصر عبد	2
Propagating and improving plants	Plant production techniques	م. علي عبد كاطع	2
Animal	Biology	م.م. ازدهار عباس علوان حسين	2
Medicines and toxins	Biochemistry and medicines	م.م. احمد ضياء خضير عبيس	2
Microbiology	Biology	م.م. رائد رزاق عجمي غالي	2
Veterinary physiology	Veterinary sciences	م.م. ود عباس محمد حسن	3
Medical microbiology	Veterinary sciences	م.م. رسل سليم عبود	3
Animal vital systems	Biology	م.م. رجاء عباس علي	3
Plant Physiology	Agriculture sciences	م.م. سارة صبار عبد الحسين	3
Medical physiology	Veterinary sciences	م.م. حوراء طالب عباس	3
Biophysics	Physics science	م.م. نورس حفطي شليوح	3
information technology	Computer science/ information technology	م.م. سنان عدنان محيسن	3
Veterinary physiology	Agriculture sciences	م.م. علي هادي محمد	3

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

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-PIAn	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

				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
	BTGE31-Im	Immunology	basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	BTGE31-CIVe	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	basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

		microbiology													
	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	basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

		diseases													
	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

1. Course Name: microbial genetic	
2. Course Code: MIC 11	
3. Semester / Year: semester	
4. Description Preparation Date: 12/7/2023	
5. Available Attendance Forms: lectures	
6. Number of Credit Hours (Total) / Number of Units (Total) 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr.Zainab Mohammed Jassim Email: zainabmohammed@bitech.uoqasim.edu.iq	
8.	
Course Objectives	<p>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.</p> <p>A2– Providing the academic and scientific community with expertise and applications in this field</p> <p>A3– Implementing an educational system that aims to develop the applied scientific capabilities and skills of individuals interested in the field of microbial genetics and transfer those applications to the labor market.....</p> <ul style="list-style-type: none"> • •

9. Teaching and Learning Strategies

Strategy	<ul style="list-style-type: none"> - Explanation and clarification 2- How to display the form 3- Lecture method 4- Self-learning method
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
the first	4	The student will be able to understand genetics in general and learn about its scientific and practical applications in the field of biotechnology	introduction to the course and the study of genetics	Power lectures	Class discussions and random oral questions end with the first exam in the fifth week	
the second	4	The student is able to present his results and understand application mechanism of genetics in the field of biotechnology	Cellular reproduction Model Genetic Organisms; Cells & chromosomes, -Mitosis & Meiosis, an introduction to some model research organisms	point. point		
the third	4		Mendelian Genetics: Monohybrid crosses	With the use of laboratory to apply the theoretical as and learn practical application of this scientific material in the field of biotechnology		
the fourth	4		Mendelian Genetics: Dihybrid and Trihybrid crosses	Power lectures		
Fifth	4		Sex Determination and Sex Linkage			
VI	4		Mendel Modified: Incomplete dominance lethal alleles, and multiple alleles			
Seventh	4		Modified Ratios: Gene Interactions			
VIII	4		Quantitative Traits, Genetic Testing, Quantitative Genetics			
Ninth	4		The student will be able to understand genetics in general and learn about its scientific and practical applications in the field of biotechnology	Linkage, crossing over and chromosome mapping; Linkage, recombination & crossing over		
The tenth	4		biotechnology	DNA Structure,		

			Mitochondrial DNA, DNA replication, Gene Expression: RNA Processing		
eleventh	4		Gene Expression: Translation, Control of Gene Expression in Prokaryotes, Control of Gene Expression in Eukaryotes		
twelveth	4		Molecular Genetics: Molecular Genetics: PCR and DNA cloning, Blotting and Probing		
Thirteenth	4		Mutations, Chromosomes Mutations: Altered Chromosome Number		
fourteenth	4		The Human Genome Project and Functional Genomics		
Fifteenth	4		Population and Evolutionary Genetics		

11. Course Evaluation

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

12. 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	