

Name of the University

Fallujah University



Applied Science Collage

Biotechnology Department

First Cycle – Bachelor's degree (B.Sc.) – Biotechnology

بكالوريوس علوم تطبيقية - تقنيات احیائية



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1. **Mission & Vision Statement**

Vision Statement

The biotechnology academic staff of applied science collage at Fallujah University believe that students come to understand the discipline of biotechnology through a combination of course work, laboratory experiences, research, and fieldwork. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by biotechnologist to make observations, develop insights and create theories about the living organisms that populate our planet. Small class sizes within the biotechnology program foster a close working relationship between academic staff and students in an informal and nurturing atmosphere.

Mission Statement

The biotechnology academic staff pursues a multifaceted charge at Fallujah University. The Program seeks to provide all biotechnology students with fundamental knowledge of biotechnology, as well as a deeper understanding of a selected focus area within the biological sciences. The curriculum and advising have been designed to prepare graduates for their professional future, whether they choose to work as field biotechnologists specializing in molecular biology or biotechnology, or to pursue advanced degrees in the genetic engineering or genetic sciences. The biotechnology program also provides the necessary fundamental knowledge of techniques to support the Forensic degree, the Environmental Studies degree, and the Associate of Science degree in Forest Technology. In addition, biotechnology courses provide a key laboratory science experience for those students seeking to complete the general education requirements

2. Program Specification

Programme code:	BSc-Biot.	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full time

Biotechnology is a wonderfully wide-ranging subject and is well equipped to deliver. The emphasis of the programme is the whole organism to which everything is related, be it the molecules that form proteins or communities of organisms in an ecosystem. The degree is popular - –or some it's' the breadth of the subject that appeals, for others it's a path to specialization. All students have the opportunity to transfer onto our specialist degrees in Genetics, Biotechnology, Biophysics, Analytic chemistry at the end of the first year.

Level 1 exposes students to the fundamentals of Biotechnology, suitable for progression to all programs within the biotechnology programme group. Programme-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4. The University Biotechnology graduate is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, 3 and 4 students are free to choose more than half of their module credits with the proviso a range of modules are selected that reflect the complexity of life forms from molecules, through organisms, both plants and animals, to populations to ensure the breadth of knowledge expected of a graduate with a biotechnology degree. This allows students to develop their own wide-ranging interests in organismal biotechnology. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practical's, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2, and optional field courses in Levels 2, 3 and 4. At Level 4 all students carry out an independent research project, which may be a xx credit library or data analysis project, or a xx credit field or laboratory based project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3. Program Objectives

1. To provide a comprehensive education in biotechnology that stresses scientific reasoning and problem solving across the spectrum of disciplines within biotechnology
2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of biotechnology
3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques
4. To provide thorough training in written and oral communication of scientific information
5. To enrich students with opportunities for alternative education in the area of biotechnology through undergraduate research, internships, and study-abroad

4. Student Learning Outcomes

Biotechnology the use of biology to develop new products, methods and organisms intended to improve human health and society. Graduates obtain information on the historical, technical and social aspects of biotechnology and utilize basic knowledge toward realizing broader concepts. The Department offers a Bachelor of Science in Biotechnology with a concentration in General Biotechnology and a minor in Secondary Education that leads to a Public Instruction License. Additionally, the Department offers courses to a large number of students from other departments and supports pre-professional programs. The biotechnology curriculum and experiences are designed to prepare students, in part, for entry into professional health programs, graduate studies, technical careers and education

Outcome 1

Identification of Complex Relationships

Graduates will be able to illustrate the use of bio-techniques to develop new products, methods and organisms intended to improve human health and society

Outcome 2

Oral and Written Communication

Graduates will be able to formally communicate the results of biotechnology investigations using both oral and written communication skills.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper.

5. Academic Staff

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Credits, Grading and GPA

Credits

Fallujah University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$\text{CGPA} = [(1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots] / 240$$

6. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-111	Principles of Biotechnology	153	47	8.00	C	
Biot-112	Biophysics	128	72	8.00	B	
Sci-101	Computer	125	50	7.00	B	
UOF-101	English	75	25	4.00	S	
UOF-102	Human rights and Democracy	53	22	3.00	S	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-121	General Biology	153	47	8.00	C	
Biot-122	General Chemistry	128	72	8.00	B	
Biot-123	Biostatistics	75	50	6	B	
Biot-124	Biosafety and Security	53	22	3	B	
UOF-103	Arabic	53	22	3	S	
UOF-104	AL Ba`ath party crime	53	22	2	S	

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-211	Microbiology					
Biot-212	Biochemistry					
Biot-213	Histology					
Biot-214	nanotechnology					

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-221	Histological preparation					
Biot-222	fermentation					
Biot-223	Enviromental microbiology					
Biot-224	algea					
Biot-225	clinical biochemistry					

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-311	pathological bacteria					
Biot-312	animal physiology					
Biot-313	immunology					
Biot-314	virology					
Biot-315	molecular biology					

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-321	microbial genetic					
Biot-322	plant physiology					
Biot-323	antibiotics					
Biot-324	endocrinology					

Biot-325	project planing and analysis					
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Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-411	genetic engineering					
Biot-412	bioinformatics					
Biot-413	plant tissue culture					
Biot-414	industrial microbiology					
Biot-415	cytogenetic					

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Biot-421	genetic and molecular diagnosis					
Biot-422	toxicology					
Biot-423	animal tissue culture					
Biot-424	food microbiology					
Biot-425	research project					

7. **Contact**

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