# Academic Program Description

University of Anbar

Faculty/Institute: College of Science

Scientific Department: Biology

Academic or Professional Program Name: Bachelor in Biology

Final Certificate Name: Bachelor in Biology

Academic System: Bologna Process

Description Preparation Date: 1/ 11/ 2024

File Completion Date: 1/ 2/ 2025

Signature:

Head of Department Name:

Date: June - 23. 2025

Signature:

Scientific Associate Name:

Date: 23/6/2025

The file is checked by:

د. أحمد خليل إبراهيم
مسؤول شعبة ضمان الجودة وتقويم الأداء

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 23/6/2025

Signature:

Approval of the Dean

أ.د. عصمت رمزي عبد الغفور
العميد

## 1. Program Vision

**Vision Statement**

**The academic staff of biology department – Collage of Science at University of Anbar believe that students registered at this department in order to understand the multidiscipline of biology through a variety of patterns of course work, laboratory experiences, research, and teamwork. This combination of instructional methods leads students to equalized understanding of the scientific techniques used by biologists to construct interpretations, develop visions and create theories about the living organisms that populate our planet. Small class sizes within the biology program foster a close working relationship between academic staff and students in an informal and nurturing atmosphere.**

## 2. Program Mission

**The academic staff of biology department – Collage of Science pursues a multifaceted charge at University of Anbar. The Program seeks to provide all biology students with ultimate knowledge of biology, as well as a deeper understanding in certain focus field within the biological sciences. The curriculum and advising have been proposed to prepare graduates for their professional future, whether they choose to work as a biologist specializing in a wide variety of special field such as microbiology, botany or wildlife, or to pursue advanced degrees in life sciences or health sciences. The program in this department, also delivers the principal fundamental knowledge of the life sciences to support the Nursing degree, the biomedical Studies degree, and the Associate of Science degree in Forest Technology. In addition, biology courses provide a key laboratory science experience for those students pursuing to accomplish the general education requirements.**

## 3. Program Objectives

1. To provide a comprehensive education in biology that stresses scientific reasoning and problem solving across the spectrum of disciplines within biology
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 biology
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 biology through undergraduate research, internships, and study-abroad

## 4. Program Accreditation

Non

## 5. Other external influences

Non

## 6. Program Structure

| Program Structure | Number of Courses | Credit hours | Percentage | Reviews* |
|---|---|---|---|---|
| Institution Requirements | 5 | 16 | 11% | |
| College Requirements | 8 | 37 | 17% | |
| Department Requirements | 33 | 187 | 72% | |
| Summer Training | NA | NA | NA | |
| Other | | | | |

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

## 7. Program Description

| Year/Level | Course Code | Course Name | Credit Hours |
|---|---|---|---|
| | | | |

جامعة الانبار
كلية العلوم
قسم علوم الحياة

# المواد الدراسية ـ قسم علوم الحياة ٢٤ـ٢٥

## Level One- Second Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 8 | 2 | 2 | General Botany | 1 |
| 4 | ------- | 2 | Safety and biosecurity | 2 |
| 5 | 1 Tut | 2 | Biostatistics | 3 |
| 8 | 2 | 2 | Organic Chemistry | 4 |
| 3 | 2 | 1 | Computer Science 1 | 5 |
| 2 | ------- | 2 | English Language 1 | 6 |
| 30 | Total ECTS | | | |

## Level One- First Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 8 | 2 | 2 | General Zoology | 1 |
| 5 | 1 Tut | 2 | General Math | 2 |
| 7 | 2 | 2 | Analytical Chemistry | 3 |
| 6 | 2 | 2 | Biophysics | 4 |
| 2 | ------- | 2 | Human Rights and Freedums | 5 |
| 2 | ------- | 2 | Arabic Language | 6 |
| 30 | Total ECTS | | | |

## Level Two- Second Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 4 | 2 | 2 | Entomology II | 1 |
| 5 | 2 | 2 | Plant Taxonomy | 2 |
| 5 | 2 | 2 | Parasitology | 3 |
| 2 | ------ | 2 | Baath Party Crimes | 4 |
| 5 | 2 | 2 | Microbiology II | 5 |
| 4 | 2 | 2 | Biochemistry II | 6 |
| 3 | 2 | 1 | Computer Science 2 | 7 |
| 2 | ------ | 2 | Arabic Language 2 | 8 |
| 30 | Total ECTS | | | |

## Level Two- First Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 4 | 2 | 2 | Entomology I | 1 |
| 5 | 2 | 2 | Plant Anatomy | 2 |
| 5 | 2 | 2 | Invertebrates | 3 |
| 5 | 2 | 2 | Plant Groups | 4 |
| 5 | 2 | 2 | Microbiology I | 5 |
| 4 | 2 | 2 | Biochemistry I | 6 |
| 2 | ----- | 2 | English Language 2 | 7 |
| 30 | Total ECTS | | | |

## Level Three- Second Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 5 | 2 | 2 | Immunology | 1 |
| 5 | 2 | 2 | Environmental Pollution | 2 |
| 5 | 2 | 2 | Animal Physiology | 3 |
| 5 | 2 | 2 | Mycology II | 4 |
| 5 | 2 | 2 | Genetics | 5 |
| 5 | 2 | 2 | Soil and Water Microbiology | 6 |
| 30 | Total ECTS | | | |

## Level Three- First Semester

| ECTS | Hours per Group | | Course Name | .No |
|---|---|---|---|---|
| | Lab | Theor | | |
| 5 | 2 | 2 | Cytology | 1 |
| 5 | 2 | 2 | Ecology | 2 |
| 5 | 2 | 2 | Histology | 3 |
| 4 | 2 | 2 | Mycology I | 4 |
| 4 | 2 | 2 | Physiology Plant | 5 |
| 5 | 2 | 2 | Microbial Physiology | 6 |
| 2 | -- | 2 | Principles of Research | 7 |
| 30 | Total ECTS | | | |

| Level Four- Second Semester | | | | |
|---|---|---|---|---|
| ECTS | Hours per Group | | Course Name | .No |
| | Lab | Theor | | |
| 5 | 2 | 2 | Microbial Genetics | 1 |
| 5 | 2 | 2 | Industrial Microbiology | 2 |
| 4 | 2 | 2 | Toxicology | 3 |
| 4 | 2 | 2 | Virology | 4 |
| 4 | 2 | 2 | Antibiotics | 5 |
| 4 | 2 | 2 | Chordates | 6 |
| 2 | -- | 2 | Bioremediation | 7 |
| 2 | 2 | | Research Graduation | 8 |
| 30 | Total ECTS | | | |

| Level Four- First Semester | | | | |
|---|---|---|---|---|
| ECTS | Hours per Group | | Course Name | .No |
| | Lab | Theor | | |
| 5 | 2 | 2 | Molecular Biology | 1 |
| 5 | 2 | 2 | Food Microbiology | 2 |
| 4 | 2 | 2 | Enzymology | 3 |
| 5 | 2 | 2 | Biotechnology and Genetic Engineering | 4 |
| 5 | 2 | 2 | Bacterial Pathogensis | 5 |
| 4 | 2 | 2 | Medical Analysis | 6 |
| 2 | -- | 2 | Biodiversity | 7 |
| 30 | Total ECTS | | | |

## 8. Expected learning outcomes of the program

| | |
|---|---|
| **Knowledge** | |
| Identification of Complex Relationships | Graduates will be able to illustrate the structure and function of cellular components and explain how they interact in a living cell. |
| **Skills** | |
| Oral and Written Communication | Graduates will be able to formally communicate the results of biological investigations using both oral and written communication skills. |
| 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. |
| **Ethics** | |
| 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. |
| Data Analyses | Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses. |
| Critical Thinking | Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper. |

## 9. Teaching and Learning Strategies

**Biology is astonishingly wide-ranging subject and is well fortified to deliver. The emphasis of this programme is the whole organism to which everything is correlated, be it the molecules that form proteins or communities of organisms in our ecosystem. It is a common degree - –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, Zoology, and Microbiology at the end of the first year.**

**In Level 1 students are exposes to core topics such as General Microbiology, Safety and Biosecurity as well as other topics, appropriate for progression to all programmes within the biology programme group. The majority of programme-specific core topics are covered at Level 2 preparing for research-led topic specialist modules at Levels 3 and 4. The University Biology graduate is therefore instructed to gain how research informs teaching, according to the University and School Mission statements.**

**At Levels 4 students have the opportunity to choose one or two topics from 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 biology degree. This allows students to develop their own wide-ranging interests in organismal biology. Decisions on what to study are made with input from personal tutors. The research ethos is developed and fostered from the start via practicals, which are either embedded in lecture modules or taught in enthusiastic practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students have to pass in order to progress into Level 2, and optional field courses in Levels 4. At Level 4 all students carry out an independent research project, which has a 4-credit library or data analysis project, or laboratory-based project or a combination of all of the above mentioned.**

**Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the individual tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to demonstrate skills such as library usage and presentation skills, followed by evaluated exercises (essays and talks) as opportunities to exercise 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.**

## 10. Evaluation methods

Quizzes, Reports, Projects, Working in groups, Midterm, final term

## 11. Faculty

### Faculty Members

| Academic Rank | Specialization | | Special Requirements/Skills (if applicable) | | Number of the teaching staff | |
|---|---|---|---|---|---|---|
| | General | Special | | | Staff | Lecturer |
| Prof. | Biology | Microbiology | | | 2 | |
| | Biology | Zoology | | | 2 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Assist. Prof. | Biology | Microbiology | | | 4 | |
| | Biology | Zoology | | | 4 | |
| | Biology | Plant | | | 2 | |
| | Biology | Ecology | | | 2 | |
| Lecturer | Biology | Microbiology | | | 3 | |
| | Biology | Zoology | | | 5 | |
| | Biology | Plant | | | 5 | |
| Lecturer | Biology | Biology | | | 18 | |

| **Professional Development** |
|---|
| **Mentoring new faculty members** |
| The department chair usually assigns new faculty a mentor based on research interests and will require that the mentor and mentee meet a certain number of times. Administrators can strive to create an atmosphere that is conducive to mentorship. This might involve events that encourage the sharing of faculty research and by explicitly weighing collaborative work and mentorship in tenure evaluations. |
| **Professional development of faculty members** |
| Faculty development included any participation in verifiable activities (face-to-face, online, blended [face-to-face combined with online elements], self-initiated/self-paced) on any topics that contribute to the enhancement/growth of your knowledge, skills, techniques, awareness or behaviors as an educator, scientist |

## 12. Acceptance Criterion

It is regulated by the Ministry of Higher Education

## 13. The most important sources of information about the program

University website and College website

## 14. Program Development Plan

1- Department budget should receive a permanent increase to stabilize operations
2- Establishment of formal faculty mentoring program
3- Website development

4- Expanded space for teaching including development of plans for laboratory renovations
5- Assign new bachelor staff

| 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 |
| Level 1 | Bio-101 | General Microbiology I | Basic | | ■ | | | | | | | | | | |
| | Bio-102 | General Chemistry | Basic | | ■ | | | | | | | | | | |
| | UNI-101 | Computer Science | Basic | ■ | | | | | | | | | | | |
| | Sci-102 | Math and Biostatistics | Basic | ■ | | | | | | | | | | | |
| | SCi-103 | Safety and Bioscurity | Basic | ■ | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Level 1 | Bio-121 | General Microbiology II | Basic | | | ■ | | | ■ | | | | | ■ | |
| | Bio-122 | Geology and Environmental Science | Basic | ■ | | | | | ■ | | | | | ■ | |
| | Sci-121 | Biophysics | Basic | ■ | | | | ■ | | | | | | ■ | |
| | UNI-121 | Human Rights and Democracy | Basic | ■ | | | | ■ | | | | | | ■ | |
| | UNI-122 | Arabic Language | Basic | ■ | | | | ■ | | | | | | ■ | |
| | UNI-123 | English Language | Basic | ■ | | | | ■ | | | | | | ■ | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Level 2** | Bio-211 | Entomology I | Basic | | | | | | | | | | | | | |
| | Bio-212 | Plant Anatomy | Basic | | | | | | | | | | | | | |
| | Bio-213 | Invertebrates | Basic | | | | | | | | | | | | | |
| | Bio-214 | Plant Groups | Basic | | | | | | | | | | | | | |
| | Bio-215 | Biochemistry I | Basic | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| **Level 2** | Bio-221 | Entomology II | Basic | | | | | | | | | | | | | |
| | Bio-222 | Plant Taxonomy | Basic | | | | | | | | | | | | | |
| | Bio-223 | Parasitology | Basic | | | | | | | | | | | | | |
| | Bio-224 | Biochemistry II | Basic | | | | | | | | | | | | | |
| | Bio-225 | Microtechnique | Basic | | | | | | | | | | | | | |
| | Bio-226 | Research Methodology | Basic | | | | | | | | | | | | | |
| **Level 3** | Bio-311 | Cell Biology | Basic | | | | | | | | | | | | | |
| | Bio-312 | Haematology | Basic | | | | | | | | | | | | | |
| | Bio-313 | Histology | Basic | | | | | | | | | | | | | |
| | Bio-314 | Mycology I | Basic | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bio-315 | Plant Physiology | Basic | | | | | | | | | | | | | |
| | Bio-316 | Aquatic and Soil Microbiology | Basic | | | | | | | | | | | | | |
| **Level 3** | Bio-321 | Genetics | Basic | | | | | | | | | | | | | |
| | Bio-322 | Pollution | Basic | | | | | | | | | | | | | |
| | Bio-323 | Animal Physiology | Basic | | | | | | | | | | | | | |
| | Bio-324 | Mycology II | Basic | | | | | | | | | | | | | |
| | Bio-325 | Immunology | Basic | | | | | | | | | | | | | |
| | Bio-326 | Microbial Physiology | Basic | | | | | | | | | | | | | |
| **Level 4** | Bio-411 | Molecular Biology | Basic | | | | | | | | | | | | | |
| | Bio-412 | pathogenic Bacteriology | Basic | | | | | | | | | | | | | |
| | Bio-413 | Food Microbiology | Basic | | | | | | | | | | | | | |
| | Bio-414 | Biotechnology and Genetic Engineering | Basic | | | | | | | | | | | | | |
| | Bio-415 | Optional 1 | Selective | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bio-416 | Research Project | Basic | | | | | | | | | | | | | |
| **Level 4** | Bio-421 | Microbial Genetics | Basic | | | | | | | | | | | | | |
| | Bio-422 | Virology | Basic | | | | | | | | | | | | | |
| | Bio-423 | Industrial Microbiology | Basic | | | | | | | | | | | | | |
| | Bio-424 | Optional 2 | Selective | | | | | | | | | | | | | |
| | Bio-425 | Optional 3 | Selective | | | | | | | | | | | | | |
| | Bio-426 | Research Project | Basic | | | | | | | | | | | | | |

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