Course catalogue

Submitted By

Department of Biology

College of Science

Majmaah University

Saudi Arabia

1. Introduction

This handbook aims to introduce students to the **Biology Program** at the College of Science in Zulfi. It explains the program structure, requirements, academic tracks, and study procedures. In addition, it clarifies students' rights, responsibilities, and the academic and support services available to them.

The handbook serves as a **guiding reference** for students throughout their academic journey, from initial enrolment until graduation.

1.1.Objectives of the Handbook

The objectives of this handbook are to:

- Clarify essential program information, including study duration, credit hours, language of instruction, and study mode.
- Explain the student's academic pathway, including registration procedures, assessment methods, and examinations.
- Support students in academic planning and in selecting the appropriate academic track.
- Clarify students' rights, responsibilities, and the fundamental regulations governing university life.

1.2.Importance of the Handbook

This handbook is important because it:

- Assists new students in smoothly integrating into the university environment.
- Increases students' awareness of academic regulations and procedures.
- Improves academic planning and helps reduce academic difficulties.
- Enhances the overall quality of the student experience and learning outcomes.

1.3.How to Use the Handbook

- The handbook should be used as a reference for academic and student-related matters within the department and the college.
- For clarification or interpretation of procedures, students should consult the relevant official authorities (the department, the college, or the Deanship of Admission and Registration).
- The handbook is subject to periodic review and updates in accordance with approved regulations and institutional developments.

2. University Leadership Messages

2.1 Message from the Vice-Rector for Educational Affairs

Prof. Dr. Saleh bin Abdullah Al-Muzal

Rector of Majmaah University

Education in the Kingdom of Saudi Arabia has gone through several stages to keep pace with civilizational, developmental, and societal progress through well-designed plans and accelerated practical steps. This development takes into account leading international experiences, global standards, and modern methods in curriculum design and system development. It encompasses capabilities, infrastructure, specialized human competencies, and study plans that meet the needs of all educational stages, aiming to achieve the highest levels of knowledge and global excellence.

Technology plays a pivotal role in developing the national economy and improving quality of life. Through **Saudi Vision 2030**, the Kingdom seeks to become a global platform for technology and innovation by strengthening digital infrastructure and increasing investment in emerging technologies. To realize this vision, numerous national initiatives and government digital transformation programs have been launched.

In this context, **Majmaah University** has played an active role in spreading technological culture, increasing awareness of electronic transactions and their importance in building a knowledge society, and linking technology concepts with both the internal university community and the wider society.

Accordingly, the University's electronic portal was developed to reflect its progress, achievements, and services provided to beneficiaries through advanced electronic systems. Since the Office of the Rector serves as a key communication channel with the University community, a dedicated webpage was established in line with the duties assigned to the office.

Tasks and Responsibilities of the Rector's Office

- Demonstrate Islamic values and ethics in all interactions.
- Operate according to the principle of integration and promote modern management concepts.
- Deliver information to the public efficiently and respond promptly to inquiries.
- Promote cooperation by ensuring that each individual contributes as part of an integrated system.
- Maintain confidentiality in all matters, transactions, and communications.

2.2 Message from the Vice-Rector for Educational Affairs

Prof. Dr. Mohammed bin Saleh Al-Aboudi

Vice-Rector for Educational Affairs

The Vice-Rectorate for Educational Affairs strives to enhance the quality of the educational process, improve learning outcomes, and elevate academic standards by aligning its initiatives with the University's strategic plan and the educational goals of **Saudi Vision 2030**.

The Vice-Rectorate focuses on meeting academic accreditation standards and achieving excellence in teaching and learning in collaboration with relevant deanships and academic departments. It also aims to create an innovative learning environment that encourages creativity and continuous development of academic programs.

Furthermore, it works to strengthen institutional partnerships and apply best educational and technological practices to support teaching and learning processes while meeting labor market needs.

Overall, the Vice-Rectorate for Educational Affairs is dedicated to realizing the University's objectives of building a knowledge-based society in accordance with the highest international quality standards, under the guidance of the University President and in alignment with the Kingdom's comprehensive development plans.

Tasks and Responsibilities of the Vice-Rectorate

- Create a dynamic and creative learning environment.
- Enhance performance across colleges and academic support units.
- Support student skill development and address academic and professional needs.
- Recruit distinguished academic talent and support continuous improvement.
- Update and improve academic programs.
- Align programs with quality assurance and accreditation standards.
- Advance teaching strategies to improve learning outcomes.
- Develop fair and effective student assessment methods.
- Build academic partnerships that enrich the educational process.
- Strengthen relationships with relevant community organizations.
- Establish knowledge exchange programs to support a knowledge-based society.
- Maintain engagement with alumni and benefit from their experiences.

2.3 Message from the Dean of the College of Science

Prof. Dr. Essam S. Al-Malki

Dean, College of Science – Zulfi

The College of Science plays a vital role in advancing knowledge and scientific research. It offers high-quality education that keeps pace with global scientific and technological developments while enhancing students' skills and intellectual abilities. The College strives to realize its vision of becoming among the leading colleges locally

and internationally by providing a high-quality academic environment that prepares graduates to contribute to the **Sustainable Development Goals**.

The College includes several scientific departments, namely **Computer and Information Sciences, Mathematics, Physics, Chemistry, and Biology**. Its academic plans are designed in accordance with labor market needs, and it serves the community through partnerships that enable the sharing of scientific and academic expertise.

The College also develops graduate programs to fulfill its mission of preparing graduates capable of competing in the labor market and making meaningful contributions to scientific research and community service. It is committed to creating a supportive academic and research environment equipped with state-of-the-art laboratories and educational facilities, supported by a distinguished group of faculty members and researchers to ensure optimal academic success for students.

Moreover, the College encourages students to engage in scientific research to enhance their competencies in service of the nation. Recognizing the importance of community service, the College seeks to establish partnerships with various entities within Zulfi and beyond for the benefit of society.

2.4 Message from the Head of the Department of Biology

Dr. Falih Abdelmohsen Al-Falih

Head of the Department of Biology

The Department of Biology was established following the renaming of the former Department of Medical Laboratories, as directed by the Minister of Education and approved by the University Council in its seventh session on 18/08/1437H.

The department plays a vital role in advancing knowledge and serving the community through high-quality academic programs and cutting-edge research that contribute to sustainable development. The department aspires to lead in biological sciences, environmental studies, and biotechnology at both national and international levels.

Our department is committed to creating a dynamic educational and research environment that nurtures student talent and opens doors to excellence and innovation. We continuously update our curricula and programs in alignment with Saudi Vision 2030, with the goal of preparing a new generation of scientists and researchers capable of competing on both regional and global stages.

We firmly believe that active collaboration among faculty, students, and staff is key to achieving our vision and goals.

3. Overview of the College of Science and Its Academic Environment

The College of Science at **Majmaah University** is well known for combining advanced theoretical education with precise practical application in the basic sciences. It provides an inspiring learning environment supported by advanced research facilities, making it an ideal destination for students.

Key Advantages of the College of Science

- Academic programs in **Biology, Chemistry, Physics, Mathematics, and Computer & Information Sciences** aligned with labor market needs.
- Opportunities for students to engage in advanced research using state-of-the-art laboratories and modern technologies.
- Active contribution to sustainable development and **Saudi Vision 2030** initiatives through innovation and applied research.
- Faculty members recognized for excellence in teaching and research.
- Strong support for innovation, creativity, and critical thinking to develop solutions to global challenges.
- Specialized and dynamic student clubs fostering excellence at both local and international levels.
- Active engagement in community service and volunteer initiatives.
- Comprehensive academic and psychological advising and student development programs.
- Partnerships with research, industrial, and medical institutions providing field training opportunities.
- Broad career prospects aligned with the evolving demands of the job market.

4. Bachelor of Biology Program:

4.1 Program Information

Item	Details
Credit Hours	136
Study Duration	4 Years
Language of Instruction	English
Tuition Fees	Free
Study Mode	Regular Education
Study Period	Morning
Degree Awarded	Bachelor
Admission Status	Available

4.2 Program Overview

A department was established within the College of Science in the academic year 1437/1438 AH. The department currently offers four educational programs: General Science and Biology, Environmental Technology, Undergraduate Science, and Graduate Studies. The department boasts a diverse faculty comprised of members from various disciplines. This diversity enhances the scientific courses offered to students in core areas such as basic studies, diverse biology, microbiology, genetics, and junior studies.

The department also houses a range of specialized laboratories equipped with modern technologies and advanced medical techniques. These laboratories provide students with contemporary knowledge and extensive laboratory experience.

The establishment of this new department has helped prepare graduates to contribute to comprehensive national development and competitiveness, including the Kingdom's Vision 2030. Graduates are employed in numerous government sectors, including the Ministries of Education, Water and Wastewater, and Electricity; in entities such as the National Center for Environmental Protection and the General Authority of Meteorology and Environmental Protection; and in various other sectors.

4.3 Program Courses

Study Plan: Level

(1)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
---	University Compulsory	2	-	2	-
---	University Compulsory	2	-	2	-
SENG-101	Scientific English	3	-	3	
BIOL-101	General Biology	3	-	3	
CSI-101	Introduction to Computer Science	3	-	3	
CHEM-101	General Chemistry-1	3	-	3	
-	Elective college requirement	2	-	2	
Total		18			

Level (2)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
---	University Compulsory	2	-	2	-
PHYS-101	General Physics-1	3	-	3	-
BIOL-102	Cell Biology	2	2	3	BIOL-101
BIOL-111	Animal Physiology	2	2	3	BIOL-101
BIOL-112	Invertebrates	2	2	3	BIOL-101
BIOL-121	Plant Anatomy & Morphology	2	2	3	BIOL-101
Total		17			

Level (3)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
---	University Compulsory	2	-	2	-
BIOL-213	Vertebrates	2	2	3	BIOL-112
BIOL-214	Animal Histology	2	2	3	BIOL-102
CHEM-211	Organic Chemistry	2	2	3	CHEM-101
BIOL-222	Plant Taxonomy	2	-	2	BIOL-121
BIOL-241	Ecology	2	-	2	BIOL-101
MATH-131	Basis of Mathematics	2	2	3	-
Total		18			

Level (4)

Course Code	Course Title		Hours Distribution			Prerequisite
			Theoretical	Practical	Credit	
---	University Compulsory		2	-	2	-
BIOL-223	Plant Physiology		2	2	3	BIOL-222
BIOL-215	Comparative Anatomy		2	2	3	BIOL-213
BIOC-221	Biochemistry		2	2	3	CHEM-211
BIOL-231	General Microbiology		2	2	3	BIOL-101 BIOL-102 BIOL-222
BIOL-242	Environmental pollution	Department Elective course	2	-	2	BIOL-241
BIOL-243	Biodiversity		2	-	2	
Total			16			

Level (5)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
-	University Compulsory	2	-	2	-
BIOL-316	Entomology	3	-	3	BIOL-112
BIOL-344	Plant Ecology	2	2	3	BIOL-223 BIOL-241
BIOL-332	Bacteriology	2	2	3	BIOL-231
BIOL-333	Mycology	2	2	3	BIOL-231
BIOL-351	Genetics	2	2	3	BIOL-102 BIOL-111
Total		17			

Level (6)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
BIOL-334	Virology	2	-	2	BIOL-231
BIOL-335	Parasitology	2	2	3	BIOL-231
BIOL-361	Instrumentation & Microscopic Preparations	1	2	2	BIOL-121 BIOL-214 BIOL-332 BIOL-333
BIOL-345	Animal Ecology & Behavior	2	2	3	BIOL-241 BIOL-111
BIOL-352	Molecular Biology	2	2	3	BIOL-351
BIOL-317	Marine Biology	2	2	3	BIOL-112 BIOL-213 BIOL-241
Total		17			

Level (7)

Course Code	Course Title		Hours Distribution			Prerequisite
			Theoretical	Practical	Credit	
BIOL-436	Immunology		3	2	4	BIOL-231
BIOL-446	Epidemiology		2	2	3	BIOL-361
BIOL-453	Genetic Engineering		2	2	3	BIOL-352
BIOL-471	Graduation Project (theoretical part)		0	4	2	BIOL-215 BIOL-223 BIOL-352 BIOL-361
---	Free Course		3	-	3	---
BIOL-473	Summer Training		-	2	1	BIOL-361
BIOL-447	Eco-physiology	Department Elective course	2	-	2	BIOL-344
BIOL-425	Medicinal & Economic plants		2	-	2	
Total			18			

Level (8)

Course Code	Course Title	Hours Distribution			Prerequisite
		Theoretical	Practical	Credit	
BIOL-454	Applied Biotechnology	2	2	3	BIOL-453
BIOL-455	Bioinformatics	2	2	3	BIOL-352
BIOL-418	Animal Taxonomy	2	-	2	BIOL-215
BIOL-419	Embryology	2	2	3	BIOL-215
---	Free Course	3	-	3	---
BIOL-472	Graduation Project (practical part)	-	4	2	BIOL-471
Total		16			

4.4 Program Objectives

Graduates of the Biology program are expected to:

1. Apply various general education competencies through the study of Biology.
2. Utilize their knowledge in modern industry, research, or teaching in high-quality graduate programs in Biology.
3. Learn and explain biology within a professional, legal ,and ethical responsibility.

4.5 Program Learning Outcomes

	Knowledge and Understanding
K1	Recognize the basic concepts, principles, scientific terminologies and facts in all major biological disciplines and other related sciences.
K2	Outline the different biological processes of the living organisms showing the adaptation to the environment
K3	Gain basic knowledge on identification, routine procedures and technical requirements of different scientific tools and equipment.
	Skills
S1	Apply biological concepts using integration of academic knowledge and professional skills in biological sciences
S2	Investigate relatively complex scientific problems, facts and opinions using a range of knowledge extension to recommend classical or innovative solutions with limited guidance.
S3	Demonstrate functions of macromolecules (e.g. DNA, proteins, lipids etc.,) in different biological systems and their applications
S4	Use perfectly the living specimens, slides and instruments in the biological experiments
	Values, Autonomy, and Responsibility
V1	Exhibit ethical and professional responsibilities to scientific problems.
V2	Communicate effectively individually and in groups inside and outside the university.

4.6 Professions/jobs for which students are qualified

- As a teacher in Public education in the schools.
- As a demonstrator, technician and lecturer in the universities.
- Students can work as a 'laboratory technician' in the Ministry of Agriculture in many areas such as soil laboratories, water, plant and animal wealth.
- Can get an opportunity as a 'Laboratory technician, Junior analyst' in the hospital laboratories.
- They can work as a 'quality controller officer' in the Food packaging factories, pharmaceutical companies and water industries.
- They can work as supervisors/officer in hatcheries and animal husbandries.
- They can work as laboratory staff/ technicians in the Ministry of Environment and the Ministry of Municipal and Rural Affairs.
- Technician/ laboratory analyst in Water and Sanitation labs

- Administrative staff in ‘Meteorology and Environmental Protection sectors’
- They can work as an ‘Administrative staff’, research analyst in ‘The National Commission for Wildlife Conservation’.

Professions/jobs for which students are qualified

- Teaching jobs in schools and colleges
- Industrial jobs as a biologist in quality control of food, water, and pharmaceutical products
- Biologist in medical laboratories
- Supervisor/biologist in bird hatcheries and animal husbandries.

4.7Admission Requirements

The following are the admission requirements stipulated for the admission of the new student:

- He should have obtained a general high school certificate or its equivalent from within or without the Kingdom of Saudi Arabia with a cumulative GPA of 70% or higher.
- Students transferred from inside or outside the university must have a GPA of no less than 2.75% and be on a scientific track.
- 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.
- He should be of a good conduct.
- He should successfully pass any test or interview assigned by the University Council.
- He should be medically fit.
- He should provide a permission for study from his reference, if he works in government or private sector
- He should satisfy any other conditions the University Council determines, announced during application.
- He should not be dismissed from any other university for disciplinary or academic reasons. If that became clear after his, his acceptance shall be deemed cancelled from the day of his admission.
- 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.
- 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.

- A student registered for another university degree or below, shall not be admitted, either in the selfsame university or another.

5 Student Academic Journey

The student academic journey consists of integrated and progressive stages designed to ensure a successful educational experience from admission through graduation. These stages include:

- **Admission and Registration:**
  Enrolment in the academic program in accordance with approved university regulations and the official study plan.
- **Academic Advising:**
  Continuous academic guidance and monitoring to support students in planning their coursework and achieving academic success.
- **Study and Assessment:**
  Commitment to course requirements, learning activities, and continuous assessment throughout each semester.
- **Cooperative/Summer Training:**
  Gaining practical experience through approved training programs that connect theoretical knowledge with real-world applications.
- **Graduation Project:**
  Application of accumulated knowledge and skills in an integrated academic project addressing real-world or research-based problems.
- **Graduation and Issuance of Official Documents:**
  Completion of graduation requirements and issuance of official academic records and certificates.

6 Academic Regulations

The academic process is governed by the University's approved rules and regulations, which include:

- **Course Registration, Add/Drop:**
  Conducted according to the academic calendar and through the official academic registration system.
- **Attendance and Absence:**
  Students must comply with approved attendance requirements for each course.

- **Examinations and Grades:**

  Students are required to sit for examinations as scheduled and announced by the University.
- **Academic Warning:**

  Issued in cases of unsatisfactory academic performance in accordance with university regulations.
- **GPA Improvement:**

  Opportunities are provided to improve the cumulative GPA based on approved academic policies.
- **Semester Excuse:**

  Granted in accordance with the regulations and procedures of the Deanship of Admission and Registration.

7 Assessment and Grading System

Student performance is evaluated through a clear, fair, and transparent assessment system, which includes:

- **Grade Distribution:**

  Clear explanation of assessment components and their weights at the beginning of the semester.
- **Types of Assessment:**

  Including assignments, projects, coursework, quizzes, midterm exams, and final exams.
- **Examinations:**

  The University conducts both **on-campus (in-person) examinations** and **electronic examinations (E-Exams)**, depending on course requirements and approved assessment methods.
- **Electronic Examinations:**

  E-exams are conducted through the University's official Learning Management System, **Blackboard Ultra**, and are subject to specific time limits, technical requirements, and academic integrity regulations.
- **Grade Recording Mechanism:**

  Grades are recorded electronically through official university systems.
- **Academic Appeals and Grievances:**

  Students may submit grade appeals or academic grievances according to approved procedures and timelines.

8 Academic Advising

Academic advising is a fundamental component of student support and aims to:

- Clarify the **role of the academic advisor** in academic guidance and planning.
- Identify **when students should consult their academic advisor**, such as during course registration, academic difficulty, track selection, training preparation, or graduation planning.
- Define the **responsibilities of both the student and the academic advisor** to ensure effective academic progress.

9 Student Activities and Activity Marks

The University encourages students to participate in extracurricular activities due to their positive impact on personal, academic, and professional development. This includes:

- **Types of Approved Activities:**
  Academic, cultural, volunteer, technical, and innovation-based activities.
- **Activity Mark Calculation:**
  Activity marks are awarded in accordance with approved university regulations.
- **Eligibility Conditions:**
  Students must commit to proper registration, active participation, and timely submission of required evidence.
- **Common Mistakes to Avoid:**
  Failure to select a course, delayed submission, or lack of documented participation.

10. Cooperative and Summer Training

Training programs aim to prepare students for the labor market by enhancing practical and professional competencies. Students are required to:

- Understand the **training objectives** and expected learning outcomes.
- Meet all **registration requirements** and academic prerequisites.
- Select an **approved training organization** relevant to their academic specialization.
- Submit **training reports** and comply with evaluation and professional ethics requirements.

11. Professional Certifications and Skills Development

The University supports students in developing professional competencies and career readiness through:

- **Importance of Professional Certifications:**
  Enhancing employability and competitiveness in the labor market.
- **University Support:**
  Providing training programs, partnerships, workshops, and learning resources.
- **Major-Related Certification Examples:**
  Certifications aligned with the student's academic specialization.
- **Development of 21st-Century Skills:**
  Including critical thinking, problem-solving, teamwork, communication, innovation, and digital literacy.

12. Electronic Systems and Blackboard Ultra

The University provides integrated electronic systems that support teaching, learning, and assessment, including:

- **Academic Registration System**
- **Learning Management System (Blackboard Ultra):**
  Used for online and blended courses, course materials, announcements, assignments, assessments, communication, and electronic examinations.
- **Official University Email**
- **Electronic Examinations and Online Assessments**

Students are expected to regularly check **Blackboard Ultra** for course updates, announcements, deadlines, and examination information.

13. Student Rights and Responsibilities

13.1 Student Rights

Students have the right to:

- Fair education within a respectful and safe learning environment.
- Academic advising and continuous academic support.

- Transparent and fair assessment based on clearly announced criteria.
- Access to university resources and electronic learning systems.

13.2 Student Responsibilities

Students are expected to:

- Comply with all university rules, regulations, and academic policies.
- Uphold academic integrity and avoid cheating, plagiarism, or misuse of electronic systems.
- Respect the university environment, facilities, faculty members, staff, and fellow students.