Academic Program Description Form

University Name: Al-Muthanna

Faculty/Institute: .Science of collage

Scientific Department: Biology

Academic or Professional Program Name: .BSc

Final Certificate Name: .BSc in Biology

Academic System: .....

Description Preparation Date: 26\5\2024

File Completion Date:26\5\2024

Signature:

Head of Department Name:

Dr. Hanaa Ali Aziz

Date:26/5/2024

Signature:

Scientific Associate Name:

أ.م. ميثم عباس مكي

Date: 26/5/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

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 Muthanna**
Faculty/Institute: **Science of college**
Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
Final Certificate Name: **Bsc Biology**
Academic System: **course**
Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Hanaa Ali Aziz
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

1. **Program Vision**
Program vision is written here as stated in the university's catalogue and website.

2. **Program Mission**
Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
1-Providing students with experience in applied life sciences. 2- Providing state institutions with specialized cadres. 3- Preparing cadres with high experience in life sciences and experience in knowing high-tech devices. 4- Providing students with scientific techniques in using devices and equipment that can be used in their theoretical and applied studies. 5--Research and study everything new in biological sciences and keep pace with scientific developments in this field.

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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**Animal Physiology**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	
Skills	
Skills objectives of the programme	

1- He has experience in knowing and operating equipment for laboratory tests. 2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	

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

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	**Specialization**		**Special Requirements/Skills (if applicable)**		**Number of the teaching staff**	
	General	**Special**			**Staff**	**Lecturer**
Assist. Prof	Biology	physiology			✓	

Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific specialization.

12. **Acceptance Criterion**
(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. **The most important sources of information about the program**
State briefly the sources of information about the program.

14. Program Development Plan

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	
Third		Animal physiology	Basic	+	+	+	+	+	+	+	+	+	+			

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

Course Description Form

1. Course Name: Animal Phsiology
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:1/3/2024
5. Available Attendance Forms: 1/3/2024
6. Number of Credit Hours (4) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Assist.Prof. Hanaa Ali Aziz Email: hanabio-1983@mu.edu.iq
8. Course Objectives

Course Objectives	Define the physiological science in the deferent systems .Diagnosis the main character of specific signs of cells Determined the relationship between the internal and external environment. 2. This course give an overview Define the physiological science in the deferent systems .Diagnosis the main character of specific signs of cells Determined the relationship between the internal and external environment 3. learning the students of normal physiological actions in the all body organs the deferent systems. The students able to determine the normal and abnor physiological action in the body.
9. Teaching and Learning Strategies	
Strategy	1- The student interacts during the lecture. 2 - The student listens attentively to an explanation. 3 - The student interacts and participates in extra-curricular activities. 4 - The student learns to behave professionally. 5 - General and Transferable Skills (other skills relevant to employability and personal development) 6. Enabling the student to pass interviews and succeed in the labor market 7 - Enabling the student to develop himself after graduation 8 - The assessment include one mid examinations and final examination addition to assignment and quiz also a home works and reports.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	4hours	**Introduction to animal physiology**	**Introduction physiology**	Smart screen	**Daily and monthly exams**
2	4hours	**Types of tubes used in lab**	**Integumentary System**	Smart screen	**Daily and monthly exams**
3	4hours	**Blood group test**	**Nervous system**	Smart screen	**Daily and monthly exams**
4	4hours	**Hb measurement**	**Cardiovascular system**	Smart screen	**Daily and monthly exams**
5	4hours	**WBC Count test**	**Blood cells**	Smart screen	**Daily and monthly exams**
6	4hours	**RBC Count test**	**Respiratory system**	Smart screen	**Daily monthly exams**
7	4hours	**Mid-term Exam Unit-Step Forc Forced Response, RLC Circuit**	**Mid-term Exam + Ur Step Forcing, Forc Response, the RLC Circ**	Smart screen	**Daily monthly exams**
8	4hours	Differential WBC count test	**Digestive system**	Smart screen	**Daily monthly exams**
9	4hours	Platelets count test	**Urinary system**	Smart screen	**Daily monthly exams**
10	4hours	Coagulation test	**Male reproductive sys.**	Smart screen	**Daily monthly exams**
11	4hours	Erythrocyte sedimentation rate test	**Female reproductive sys.**	Smart screen	**Daily monthly exams**

12	4hours	**Blood pressure te**	**Skeletal system**	Smart screen	**Daily monthly exams**
13	4hours	**Determination blood glucose test**	**Muscular system**	Smart screen	**Daily monthly exams**
14	4hours	**The respirat system function**	**Endocrinology 1**	Smart screen	**Daily monthly exams**
15	4hours	**Pregnant test**	**Endocrinology 2**	Smart screen	**Daily monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	**Medical physiology , Gunstream's Anatomy & Physiology** **Biology journals, medical journal**
Electronic References, Websites	

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Academic Programand CourseDescription Guide

2024

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Academic Program Description Form

University Name:Al Muthanna

Faculty/Institute:Science

Scientific Department: Biology

Academic or Professional Program Name:Bachelor's

Final Certificate Name: **Bachelor's in Biology**

Academic System:**courses**

Description Preparation Date: **26–5–2024**

File CompletionDate: **26–5–2024**

Signature:

Head of DepartmentName:

Asst. Prof. Dr. Hanaa Ali Aziz

Date:

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Departmentof Quality Assurance and University Performance

Director of the Quality Assurance and UniversityPerformance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

Our vision is to create a pioneering program in Immunology that advances a deep understanding of the principles of Microbiology that cause disease. We aim to foster an educational environment that fosters scientific curiosity, critical thinking, and the application of clinical knowledge to solve real-world health problems.

2. Program Mission

Our mission is to provide a comprehensive education in Immunology, equipping students with the knowledge and skills necessary to excel in academic, research, and healthcare settings. We strive to advance the field through cutting-edge research, ethical practices, and the development of innovative solutions to global health challenges.

3. Program Objectives

1- Providing students with experience in applied life sciences.
2- Providing state institutions with specialized cadres.
3- Preparing cadres with high experience in life sciences and experience in knowing high-tech devices for investigating microorganisms.
4- Providing students with scientific techniques in using devices and equipment that can be used in their theoretical and applied studies.
5--Research and study everything new in biological sciences and keep pace with scientific developments in this field.

4. Program Accreditation

Yes– Ministry of Higher Education and Scientific Research (Iraq)

5. Other external influences

Ministry of Higher Education and Scientific Research (Iraq)

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements	X	3		
Summer Training				
Other				

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

7. Program Description				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
Third		Immunology	**theoretical**	**practical**

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	• Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques • Gain experience in knowing all laboratory equipment and modern technologies. • Providing him with sufficient information to keep up with and study modern sciences
Skills	
Learning Outcomes 2	**Learning Outcome Statement 2** :To learn how to imitate and imitation • To learn the method of experimentation • Improving the student's ability to observation
Learning Outcomes 3	**Learning Outcome Statement 3:** Possessing scientific knowledge to keep pace with modern developments in biological sciences.
Ethics	
Learning Outcomes 4	Understand the ethical considerations, including the responsible handling of patient samples, confidentiality, and the ethical use of diagnostic techniques.
Learning Outcomes 5	• Enhancing the student's level of understanding through modern methods of learning • Providing him with accurate information • Making the student bear part of enhancing the scientific aspect

9. Teaching and Learning Strategies

Through weekly and quarterly examinations, in addition to scientific reports.

10. Evaluation methods

- Evaluation methods are implemented at various stages of the program, including:
- Continuous Assessment: Regular quizzes, assignments, and participation.
- Laboratory Reports: Evaluation of practical work and experimental results.
- Examinations: Mid-term and final exams to assess comprehensive understanding.
- Projects and Presentations: Assessing the ability to apply knowledge and communicate findings.
- Peer and Self-Assessment: Encouraging reflective learning and peer feedback.
- Mid exam
- Final exam

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant Professor Dr.	Biology	Medical Microbiology			✓	

Professional Development

Mentoring new faculty members

• Orientation programs to familiarize them with departmental policies and teaching methodologies.
• Regular meetings with experienced faculty mentors to discuss teaching strategies and research integration.

Professional development of faculty members

The academic and professional development plan includes:

- Workshops on innovative teaching and learning strategies.
- Seminars on the latest research advancements in Immunology.
- Opportunities for faculty to attend conferences and participate in collaborative research projects.

- Regular assessments and feedback sessions to enhance teaching effectiveness.

12. Acceptance Criterion

The program follows the central admission regulations set by the university, which include academic qualifications, entrance exams, and interviews.

13. The most important sources of information about the program

1- **Medical Microbiology: Jawetz, Melnick & Adelberg's (2013).**
2- **Medical Microbiology & Immunology: Warren Levinson (2012).**
3- **Microbiology and Immunology ,Subhash Chandra Parija,2012**

14. Program Development Plan

The development plan for the Immunology program involves continuous curriculum review and updates based on the following key elements:

- **Feedback from Students, Faculty, and Industry Partners**: Regularly collect and incorporate feedback from students, faculty, and industry partners to ensure the curriculum remains relevant and meets the needs of all stakeholders.
- **Emerging Trends and Technological Advancements**: Stay abreast of the latest trends and technological advancements in immunity to integrate new knowledge and techniques into the curriculum.
- **Accreditation Requirements and Standards**: Adhere to accreditation requirements and standards set by relevant accrediting bodies to ensure the program maintains high educational and professional standards.
- **Periodic Assessments**: Conduct regular assessments and evaluations of the program to ensure it meets its educational and professional objectives, making adjustments as necessary to improve outcomes and maintain excellence.

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
Third		Immunology	optional	+	+	+		+	+			+	+		

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

Course Description Form

1. Course Name: **Immunology**

2. Course Code:

3. Semester / Year: First Semester

4. Description Preparation Date: 26-5-2024

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total):
   4/3

7. Course administrator's name (mention all, if more than one name)
   Name: Asst Prof. Dr. Noor Sami Aboud
   Email: drnoor_s78@mu.edu.iq

8. Course Objectives

Course Objective	• Explain the basic principles of immunology • Explaining the interference that may occur in the interactions between antibodies and antigen • As well as clarifying the mechanics of tests and how to deal with various types of disease models • As well as knowing the clinical importance and benefit of performing immunological tests • As well as knowing how to interpret results and how to write test results reports

9. Teaching and Learning Strategies

Strateg	• Active Participation and Interaction: Engage students in discussions and interactive lectures to deepen understanding. • Hands-on Laboratory Sessions: Facilitate practical experiments to apply theoretical knowledge. • Case Studies and Practical Workshops: Provide real-world scenarios to enhance problem-solving skills. • Communication Skills Training: Develop written and oral communication skills for scientific contexts. • Integration of General and Transferable Skills: Incorporate critical thinking, problem-solving, and research skills into the curriculum. • Ethical Considerations: Discuss ethical issues related to genetic research and engineering. • Staying Updated with Research: Encourage students to read scientific journals and participate in research activities. • Collaboration and Teamwork: Promote group projects and teamwork to simulate scientific collaboration.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Immune system, Role of the immune system,Historical Background of Immunology , Types of immunity	Introduction to Immunology as Science	Lecture and Discussion	Quiz
2	2	Characteristics of non-specific (Innate) immunity A. Anatomical barriers against infections: 1. Mechanical (physical) factors 2. Chemical factors 3. Biological factors B. Humoral barriers against infections C. Cellular barriers against infections	Types of Innate Immunity	Laboratory Session	Report
3	2	Characteristics of acquired Immunity: Classification of adaptive immunity according to the nature of the components Classification of adaptive immunity according to the route acquirement Factors affecting the immune system	Adeptive immunity	Practical Workshop	Report
4	2	Granulocytes:- polymorphonuclear cells (PMNs) Non- granulated cells Lymphocytes	Cells of the immune system	Lecture and Discussion	Mid-term Exam
5	2	Lymph and Lymphoid Tissues Organs of Immune System 1- Primary (central) lymphoid organs 2- Secondary (peripheral) lymphoid organs	Lymphatic organs	Laboratory Session	Report
6	2	Mechanisms of immune response Primary immune response Secondary immune response	The effectiveness of the immune system and the immune response	Lecture and Discussion	Quiz
7	2	Structure of Immunoglobulin Classes of immunoglobulines	Antibodies	Practical Workshop	Assignment
8	2	The properties of foreign substances that induce an immune response	Antigens and Immunogen	Laboratory Session	Report

		Factors Influencing Immunogenicity Epitope, Paratope, Hapten, adjuvant			
9	2	Antigen-Antibody Complex Affinity 1. Neutralization of microbes and toxins. 2. Activation of complement system 3. Opsonization: 4. Agglutination 5. Antibody-dependent cell-mediated cytotoxicity (ADCC):	Antigen-Antibody Reaction	Lecture and Discussion	Quiz
10	2	Complement System	1.Synthesis and metabolism of complement components. 2. Activation of the complement system. 3. Function of the complement system 4. Complement Pathways 5.Membrane attack complex Formation:	Lecture and Case Study	Assignment
11	2	Autoimmune diseases	Origin of T Cells thymic education Immunologic Tolerance	Practical Workshop	Mid-term Exam
12	2	Immunologic Tolerance	Central T-cell tolerance Peripheral T-cell tolerance Central B Cell Tolerance Peripheral B-cell tolerance	Lecture and Discussion	Quiz
13	2	Relationship between tumor and immunity	Immune cell with antitumor activity Tumor associated antigens immunotherapy	Laboratory Session	Report

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports .... etc
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	1- Medical Microbiology: Jawetz, Melnick & Adelberg's (2013). 2- Medical Microbiology & Immunology: Warren Levinson (2012). 3- Microbiology and Immunology ,Subhash Chandra Parija,2012
Recommended books and references (scientific journals, reports...)	Scientific journals on Immunology
Electronic References, Websites	• PubMed • Immunology Society website

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University Name: **Al Muthanna**
Faculty/Institute: **Science of college**
Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
Final Certificate Name: **Bsc Biology**
Academic System: **course**
Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Hanaa Ali Aziz
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

1. **Program Vision**
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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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**ecology**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	

Skills	
Skills objectives of the programme 1- He has experience in knowing and operating equipment for laboratory tests. 2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof	Biology	Ecology& pollution			✓	

Professional Development
Mentoring new faculty members
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Professional development of faculty members
Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific specialization.

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				Required program Learning outcomes											
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				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third		ecology	Basic	+	+	+	+	+	+	+	+	+	+		

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

Course Description Form

1. Course Name: Ecology
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:1/3/2024
5. Available Attendance Forms: 1/3/2024
6. Number of Credit Hours (4) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Ali Abduihamza Email: **alialfanharawi@mu.edu.iq**
8. Course Objectives

Course Objectives	1. The student learns: Basic facts, 2. concept of Environment, 3. its main branches, 4. its importance, 5. environmental zones, 6. ecosystem and components, 7. relationship between biota, 8. sample collection and analysis.

9. Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering t module is to encourage students' participation in the exercises, while at same time refining and expanding their critical thinking skills. This will achieved through classes, interactive tutorials and by considering type of sim experiments involving some sampling activities that are interesting to students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4hours	Introduction, Definition of ecol and its relation other science.	Introduction to ecology lab., types of environment and ecosystems. Ecology lab. safe	Smart screen	**Daily and monthly exams**
2	4hours	Branches of ecol Aquatic ecology classification, Terrestrial ecol and classification	Laboratory equipment, Air temperature, pressure and measurement	Smart screen	**Daily and monthly exams**
3	4hours	Ecosystem components	Air humidity, rain measurem	Smart screen	**Daily and monthly exams**
4	4hours	Limited factors tolerance laws	Wind, light intensity	Smart screen	**Daily and monthly exams**
5	4hours	A biotic factors limited factors	Devices and tools used in sampling.	Smart screen	**Daily and monthly exams**
6	4hours	Food chains and f nets	Water flow and measurement	Smart screen	**Daily monthly exams**
7	4hours	Productivity measurement methods, Environmental pyramids	Soil types, soil moisture measurement	Smart screen	**Daily monthly exams**
8	4hours	Gasous sedimentary cycles	Analysis of soil textures by tv methods	Smart screen	**Daily monthly exams**
9	4hours	Population, distribution, structu	Productivity and plant area surface measurement	Smart screen	**Daily monthly exams**
10	4hours	Communities, classification analysis	Study of ecosystem	Smart screen	**Daily monthly exams**
11	4hours	Ecosystem divers Freshwater ecosystems	Types of food chain in the environment	Smart screen	**Daily monthly exams**

12	4hours	Ecosystem divers Terrestrial ecosyste	Population size measurement	Smart screen	**Daily and monthly exams**
13	4hours	Environmental succession, water land success Ecosystem development.	Visit to the meteorological stat	Smart screen	**Daily and monthly exams**
14	4hours	Local Environm case study		Smart screen	**Daily and monthly exams**
15	4hours	Open Lecture		Smart screen	**Daily and monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Ecology and pollution. Hussein Al-Saadi, 2002
Recommended books and references (scientific journals, reports…)	Ecology, Hattog& Ubaidah, 2009 Basic concepts of ecology and pollution. Ihsan al-Gohary, 2019 Essentials of Ecology. Miller and Spoolman, 2009
Electronic References, Websites	

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

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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.

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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 Muthanna**
Faculty/Institute: **Science of college**
Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
Final Certificate Name: **Bsc Biology**
Academic System: **course**
Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Hanaa Ali Aziz
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

1. **Program Vision**
Program vision is written here as stated in the university's catalogue and website.

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Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
1-Providing students with experience in applied life sciences. 2- Providing state institutions with specialized cadres. 3- Preparing cadres with high experience in life sciences and experience in knowing high-tech devices. 4- Providing students with scientific techniques in using devices and equipment that can be used in their theoretical and applied studies. 5--Research and study everything new in biological sciences and keep pace with scientific developments in this field.

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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**Fungi taxonomy**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	

Skills	
Skills objectives of the programme 1- He has experience in knowing and operating equipment for laboratory tests. 2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
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Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific specialization.

12. **Acceptance Criterion**
(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. **The most important sources of information about the program**
State briefly the sources of information about the program.

14. Program Development Plan

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	
Third		Animal physiology	Basic	+	+	+	+	+	+	+	+	+	+			

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

Course Description Form

1. Course Name: fungi taxonomy
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:1/3/2024
5. Available Attendance Forms: 1/3/2024
6. Number of Credit Hours (4) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Assist.Prof. Dhay Ali Aziz Email: : Dhayali_1985@mu.edu.iq
8. Course Objectives

Course Objectives	1. Clarify the basic principles of tests in the classification of fungi 2. Clarification of the discrepancy and difference between the types of fungi according to the taxonomic characteristics 3. As well as clarifying the mechanics of tests and how to deal with fungal models of various kinds 4. As well as knowing the importance of fungi and the benefit of conducting classification of different fungal species As well as knowledge of the interpretation of the interdependence between fungi and t overlap with the forms of public life

9. Teaching and Learning Strategies

Strategy	1. Lectures and tutorials provide background information on each type of fungal infection / disease and introduce the fungal identification methods. The practical classes enable students to develop the skills to identify fungi and learn how to use their knowledge of the diseases and fungi to aid on the interpretation the laboratory tests. The practical's are considered essential to develop the skills needed to take the practical based exam. 2 - The student interacts during the lecture. 3 - The student listens attentively to an explanation. 4 - The student interacts and participates in extra-curricular activities. 5 - The student learns to behave professionally. 6 - General and Transferable Skills (other skills relevant to employability and personal

	development) 7. Enabling the student to pass interviews and succeed in the labor market 8 - The assessment include one mid examinations and final examination in addition to assignment and quiz also a home works and reports. 9. The practical assessment tests the practical skills and understanding of identification keys and methods, which when combined lead to an identification result. However, it also requires knowledge and understanding of the clinical aspects of fungal infection which might be characteristic of a particular fungus or disease type. Many of the exam questions include clinical information. 10. The coursework essay tests the understanding of one species of fungus in terms of what type of fungus it is, how it is identified, epidemiology, what diseases it causes, what pathogenicity features it has, how infections are managed and treated. It is representative of the lectures that would have covered for a range of medically important fungi, but provides an opportunity for the individual to demonstrate their in-depth knowledge and understanding of just one species. It also enables the student to demonstrate their ability to research a topic and prepare a concise report in the style of a review article from the Journal of Clinical Microbiology. 11. This course provides theoretical knowledge of fungal infections and practical skill identify fungi in a laboratory, therefore the assessment tests both aspects.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4hours	Comparison betw old and classification	Classification charac of fungi	Smart screen	**Daily and monthly exams**
2	4hours	Kingdom of Protoz	Study characters and some spe of Phylums of Protozo	Smart screen	**Daily and monthly exams**
3	4hours	True slime molds	Study characters and some spe of True slime molds	Smart screen	**Daily and monthly exams**
4	4hours	Myxomycetes Plasmodiophoromy es	Study characters and some spe of Myxomycetes Plasmodiophoromycetes	Smart screen	**Daily and monthly exams**
5	4hours	Oomycetes	Study characters and some spe of Oomycetes	Smart screen	**Daily and monthly exams**
6	4hours	Chytridiomycetes	Study characters and some spe of Chytridiomycetes	Smart screen	**Daily monthly exams**
7	4hours	Zygomycetes	Study characters and some spe of Zygomycetes	Smart screen	**Daily monthly exams**

8	4hours	Ascomycetes	Study characters some species Ascomycetes	Smart screen	**Daily monthly exams**
9	4hours	Euascomycetes	Study characters and some spe of Euascomycetes	Smart screen	**Daily monthly exams**
10	4hours	Virimomycetes	Study characters and some spe of Virimomycetes	Smart screen	**Daily monthly exams**
11	4hours	Heterobasidiomyce	Study characters and some spe of Heterobasidiomycetes	Smart screen	**Daily monthly exams**
12	4hours	Homobasidiomyce	Study characters and some spe of Homobasidiomycetes	Smart screen	**Daily monthly exams**
13	4hours	Deutromycetes	Study characters and some spe of Deutromycetes	Smart screen	**Daily monthly exams**
14	4hours	mondiales	Study characters and some spe of mondiales	Smart screen	**Daily monthly exams**
15	4hours	melanconiales	Study characters and some spe of melanconiales	Smart screen	**Daily monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Basic in classification of fungi (Adul Aziz Nkailan20 Introductory Mycology, fourth edition, Alexopoulos Mins and Blackwell , reprint: 2013. Introduction to Fungi, Third Edition, JohnWebster and RolandWeber, 2007
Recommended books and references (scientific journals, reports…)	- Classification of fungi 2- Basic in classification of fungi
Electronic References, Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering

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Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
Final Certificate Name: **Bsc Biology**
Academic System: **course**
Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Hanaa Ali Aziz
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

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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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**mycology**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	
Skills	
Skills objectives of the programme 1- He has experience in knowing and operating equipment for laboratory tests. 2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	

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

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Prof	Biology	Microbiology			✓	

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

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Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific specialization.

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(Setting regulations related to enrollment in the college or institute, whether central admission or others)

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State briefly the sources of information about the program.

14. Program Development Plan

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	
Third		mycology	Basic	+	+	+	+	+	+	+	+	+	+			

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

Course Description Form

1. Course Name: Mycology
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:1/3/2024
5. Available Attendance Forms: 1/3/2024
6. Number of Credit Hours (4) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Assist.Prof. Dhay Ali Aziz Email: : Dhayali_1985@mu.edu.iq
8. Course Objectives

Course Objectives	1. Examine the major aspects of human fungal infections and how to identify the pathogens. 2. 2. Describe the basic structure and classification of pathogenic fungi. 3. 3. Demonstrate knowledge and understanding of the pathogenesis of the various mycoses, their clinical manifestations, diagnosis and management;. 4. 4. Develop and encourage the field of scientific research. 5. 5. To provide all students with a broad education in the basic aspects in the first year and to provide them with a higher level of knowledge and understanding of the subject chosen in their second year. 6. 6.Demonstrate knowledge and understanding of key aspects of practical microbiology.. 7. 7. In the third year, students are trained in laboratory tests,. 8. 8. Providing fourth year students with research skills. 9. 9. Apply relevant identification techniques and skills in any laboratory settings using moulds or yeasts 10. 10. The morphology and taxonomy of pathogenic fungi 11. 11. The mycoses - superficial and cutaneous, subcutaneous, and systemic; 12. Virulence factors, immunology, aspects of treatment.

9. Teaching and Learning Strategies

Strategy	1 Lectures and tutorials provide background information on each type of fungal infection / disease and introduce the fungal identification methods. The practical classes enable students to develop the skills to identify fungi and learn how to use their knowledge of the diseases and fungi to aid on the interpretation the laboratory tests. The practicals are considered essential to develop the skills needed to take the practical based exam. 2 - The student interacts during the lecture. 3 - The student listens attentively to an explanation. 4 - The student interacts and participates in extra-curricular activities. 5 - The student learns to behave professionally. 6 - General and Transferable Skills (other skills relevant to employability and personal development) 7. Enabling the student to pass interviews and succeed in the labor market 7 - Enabling the student to develop himself after graduation 8 - The assessment include one mid examinations and final examination in addition to assignment and quiz also a home works and reports. 9. The practical assessment tests the practical skills and understanding of identification keys and methods, which when combined lead to an identification result. However, it also requires knowledge and understanding of the clinical aspects of fungal infection which might be characteristic of a particular fungus or disease type. Many of the exam questions include clinical information. 10. The coursework essay tests the understanding of one species of fungus in terms of what type of fungus it is, how it is identified, epidemiology, what diseases it causes, what pathogenicity features it has, how infections are managed and treated. It is representative of the lectures that would have covered for a range of medically important fungi, but provides an opportunity for the individual to demonstrate their in-depth knowledge and understanding of just one species. It also enables the student to demonstrate their ability to research a topic and prepare a concise report in the style of a review article from the Journal of Clinical Microbiology. 11. This course provides theoretical knowledge of fungal infections and practical skills to identify f in a laboratory, therefore the assessment tests both aspects.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4hours	**Characteristics fungi**	**Fungal culture**	Smart screen	**Daily and monthly exams**
2	4hours	**Principles of living fungi**	**Preparation of fu cultures**	Smart screen	**Daily and monthly exams**
3	4hours	**Reproduction of fung**	**Preparation of fu cultures**	Smart screen	**Daily and monthly exams**

4	4hours	**Morphology of fungi**	**staining method**	Smart screen	**Daily and monthly exams**
5	4hours	**Morphology of fungi**	**staining method**	Smart screen	**Daily and monthly exams**
6	4hours	**Fungal cell Struct and Function**	**spore staining**	Smart screen	**Daily monthly exams**
7	4hours	**Mid-term Exam + U Step Forcing, For Response, the R Circuit**	**Mid-term Exam + Unit-S Forcing, Forced Respo the RLC Circuit**	Smart screen	**Daily monthly exams**
8	4hours	**Fungal cell Struct and Function**	**Mycoses**	Smart screen	**Daily monthly exams**
9	4hours	**Pathogenesis of fungi (Mycoses)**	**Cutanous Mycoses**	Smart screen	**Daily monthly exams**
10	4hours	**FungalDiseases (Mycoses)**	**subcutaneous mycoses**	Smart screen	**Daily monthly exams**
11	4hours	**FungalDiseases (Mycoses)**	**Otomycosis**	Smart screen	**Daily monthly exams**
12	4hours	**Laboratory diagnosis of mycoses**	**Epidermophyton**	Smart screen	**Daily monthly exams**
13	4hours	**Mycotoxin**	***Microsporum canis***	Smart screen	**Daily monthly exams**
14	4hours	**Characteristics mycotoxin induced disease**	***Trichophyton sp.***	Smart screen	**Daily monthly exams**
15	4hours	**Candidiasis**	***Tinea capitis***	Smart screen	**Daily monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	**Course text book: Identification of Pathogenic Fung by CK Campbell *et al.***
Recommended books and references (scientific journals, reports…)	**Mycology textbooks available in the LSHTM library.** **Journals: Medical Mycology, Journal of Clinical Microbiology, Clinical Microbiology Reviews, etc.** **Deacon, J. W. (2000) *Modern Mycology*. Blackwell, Oxford.** **Carlile, M. J., Watkinson, S. C. and Gooday, G. W. (2001) *The Fungi* (2nd edn). Academic, London**
Electronic References, Websites	The Mycology online website is excellent and is curated expert mycologists :_ https://mycology.adelaide.edu.au/

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Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
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Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Hanaa Ali Aziz
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

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Program vision is written here as stated in the university's catalogue and website.

2. **Program Mission**
Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
1-Providing students with experience in applied life sciences. 2- Providing state institutions with specialized cadres. 3- Preparing cadres with high experience in life sciences and experience in knowing high-tech devices. 4- Providing students with scientific techniques in using devices and equipment that can be used in their theoretical and applied studies. 5--Research and study everything new in biological sciences and keep pace with scientific developments in this field.

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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**pollution**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	

Skills	
Skills objectives of the programme 1- He has experience in knowing and operating equipment for laboratory tests. 2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof	Biology	Ecology& pollution			✓	

Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific specialization.

12. **Acceptance Criterion**
(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. **The most important sources of information about the program**
State briefly the sources of information about the program.

14. Program Development Plan

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
Third		Pollution	Basic	+	+	+	+	+	+	+	+	+	+		

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

Course Description Form

1. Course Name: pollution
2. Course Code:
3. Semester / Year: Semester
4. Description Preparation Date:1/3/2024
5. Available Attendance Forms: 1/3/2024
6. Number of Credit Hours (4) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Ali Abduihamza Email: **alialfanharawi@mu.edu.iq**
8. Course Objectives

Course Objectives	1. The student learns the concept of the environmental pollution, 2. its main sources, 3. its types, 4. its effects on biota and environment. 5. Recognizing the importance of preserving the environment.
9. Teaching and Learning Strategies	
Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simp experiments involving some sampling activities that are interesting to the students.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	4hours	Introduction pollution, characteristics pollutants.	Definition of pollution, types of pollutants in the air	Smart screen	**Daily and monthly exams**
2	4hours	Effect of pollutants	Effect of dust pollution on plants	Smart screen	**Daily and monthly exams**
3	4hours	Air pollution	Determination of carbon monoxide	Smart screen	**Daily and monthly exams**
4	4hours	Major air pollut sources and effects	Determination of carbon diox	Smart screen	**Daily and monthly exams**
5	4hours	Global warming ozone layer	Dissolved oxygen measurem	Smart screen	**Daily and monthly exams**
6	4hours	Radiation pollut sources and effects	Measurement of electrical conductivity and salinity	Smart screen	**Daily monthly exams**
7	4hours	Water Pollution	Measurement of radiation lev	Smart screen	**Daily monthly exams**
8	4hours	Major water pollut	BOD measurement	Smart screen	**Daily monthly exams**
9	4hours	Oil Pollution	Alkalinity measurement	Smart screen	**Daily monthly exams**
10	4hours	Heavy metal pollut	Hardness measurement	Smart screen	**Daily monthly exams**
11	4hours	Soil pollution	Measurement of calcium and magnesium	Smart screen	**Daily monthly exams**

12	4hours	Pollution pesticides	Effect of pesticides on biota	Smart screen	**Daily and monthly exams**
13	4hours	Noise pollution	Noise measurement	Smart screen	**Daily and monthly exams**
14	4hours	Visual pollution	Turbidity measurement	Smart screen	**Daily and monthly exams**
15	4hours	The most fam disasters associ with environme pollution		Smart screen	**Daily and monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Ecology and pollution. Hussein Al-Saadi, 2002
Recommended books and references (scientific journals, reports…)	Basic concepts of ecology and pollution. Dr. Ihsan al-Gohary, 2019 Environmental Science, Das & Behera, 2008
Electronic References, Websites	

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 Muthanna**
Faculty/Institute: **Science of college**
Scientific Department: **Biology**
Academic or Professional Program Name: **Bsc Biology**
Final Certificate Name: **Bsc Biology**
Academic System: course
Description Preparation Date: **1/3/2024**
File Completion Date: **1/3/2024**

Signature:
Head of Department Name:
Date:

Signature:
Scientific Associate Name:
Assist.Prof.Maitham Abbas Makei
Date:

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date:
Signature:

Approval of the Dean

1. **Program Vision**
Program vision is written here as stated in the university's catalogue and website.

2. **Program Mission**
Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
1-Providing students with experience in applied life sciences. 2- Providing state institutions with specialized cadres. 3- Preparing cadres with high experience in life sciences and experience in knowing high-tech devices. 4- Providing students with scientific techniques in using devices and equipment that can be used in their theoretical and applied studies. 5--Research and study everything new in biological sciences and keep pace with scientific developments in this field.

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?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Third		**Soil & aquatic Microbiology**	**theoretical**	**practical**
			2	**2**

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals 1- Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. 2- Gain experience in knowing all laboratory equipment and modern technologies. 3- Providing him with sufficient information to keep up with and study modern sciences.	
Skills	
Skills objectives of the programme 1- He has experience in knowing and operating equipment for laboratory tests.	

2- Possessing scientific knowledge to keep pace with modern developments in biological sciences.	

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

9. Teaching and Learning Strategies

Practical theoretical lectures, scientific seminars, application in laboratories, in addition to the training courses held by the department.

10. Evaluation methods

Through weekly and quarterly examinations, in addition to scientific reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Prof	Biology	Microbiology			✓	

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Personal development is planned through access to modern scientific sources, in addition to participating in training courses inside and outside the country in the field of scientific

specialization.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan

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
Third		Soil & aquatic Microbiology	Basic	+	+	+	+	+	+	+	+	+	+		

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

Course Description Form

1. Course Name: Soil & aquatic Microbiology

2. Course Code:

3. Semester / Year: 6/2023-2024

4. Description Preparation Date:1/3/2024

5. Available Attendance Forms: 1/3/2024

6. Number of Credit Hours (4) / Number of Units (3)

7. Course administrator's name (mention all, if more than one name)

Name: Assist.Prof. Maitham Abbas Makei
Email: mabbas@mu.edu.iq

8. Course Objectives

Course Objectives	**• Identify the relationship between microorganisms and the soil and water environment.** **• Explaining the concept of microorganisms, their divisions, classification, a general characteristics, knowing the extent of their impact on the s environment and the aquatic environment, as well as knowing the physical a chemical factors affecting microbial activity in both environments. Microbes foods, how to detect them, their importance, and how to benefit from them.**

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	4hours	Introducing the gene characteristics of microorganisms	Introduction and historical overview of the development of microbiology	Smart screen	Daily and monthly exams
2	4hours	Introducing the physiological and cultu characteristics of the studied microorganism	Soil is a microbial environment	Smart screen	Daily and monthly exams
3	4hours	Definition of microbial groups in soil	The most important soil microbes	Smart screen	Daily and monthly exams
4	4hours	Introduction to the nitrogen cycle, mineralization process and metabolism	Nitrogen cycle microbes	Smart screen	Daily and monthly exams
5	4hours	Introducing the role of microorganisms in the processes of sulfur and phosphorus transformations	The role of soil microbes in iron transformations	Smart screen	Daily and monthly exams
6	4hours	Introducing the role of microorganisms in the processes of sulfur and phosphorus transformations	The role of soil microbes in phosphorus and sulfur transformations	Smart screen	Daily monthly exams
7	4hours	Introduction to microbial analysis of pesticides	The role of soil microbes in analyzing pesticide residues	Smart screen	Daily monthly exams
8	4hours	Study of Microorganisms in water	Water is a microbial environment	Smart screen	Daily monthly exams
9	4hours	Sources of microbial contamination of water (domestic, industrial, hospital, and agricultural waste)	Sources of microbial contamination of water	Smart screen	Daily monthly exams
10	4hours	Identifying the sources of microbial contamination and the factors affecting their presence	Physical and chemical factors affecting microbial activity	Smart scree	Daily monthly exams
11	4hours	Definition of biological relationship	The relationship between water microbes with both plants and aquatic organisms	Smart scree	Daily monthly exams
12	4hours	Introduction to water treatment methods	Treatment of drinking water and liquid waste	Smart scree	Daily monthly exams

13	**4hours**	**Introduction to sewage treatment and a detailed explanation of modern systems in treatment methods.**	**Sewage waste, how to treat it, and the role of microbes in it**	**Smart scree**	**Daily monthly exams**

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	**البيئة المائية (ا.د. حسين علي السعدي / 2009) .** **علم الاحياء المجهرية للمياه (رشيد محجوب المصلح /1988 / جامعة بغداد) .** **علم الاحياء المجهرية (طالب كاظم المفرجي / 1990 / جامعة بغداد / كلية العلوم) .** **علم الاحياء المجهرية للتربة والمياه /الجزء العملي (طالب كاظم المفرجي وشذى سلمان العزاوي 1991 جامعة بغداد) .** **ميكربيولوجيا التربة البيئي / الصديق احمد مصطفى /2011**
Electronic References, Websites	