COLLEGE OF ENVIRONMENTAL SCIENCES

GUIDE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

2025

College of Environmental Sciences

Muthanna Jasim mohammed AL-Tae`e

Dean of the gollege

Dr.Shaimaa Khalil Abdullah Al-Hayali
Assistant Dean for Administrative Affairs

Dr. Mohammed Waleed Saeed Al-Abbasi
Assistant Dean for Scientific Affairs

Prof. Dr. Mohammed Ibrahim Khalil Al-Taee
Head of the Environmental Sciences Department

Asst. Prof. Dr. Iyad Fadheel Qasim Al-Naama
Head of the Environmental Technologies Department

Asst. Prof. Dr. Rehab Abdul-Jabbar Hamed Al-Bakr
Head of the Environmental Health Department

Dr. Ali Zain Al-Abideen Haidar Al-Uzeir
Head of the Climate Change Department

Introduction

The Department of Environmental Sciences is one of the core and founding departments of the College of Environmental Sciences. It was established alongside the college in June 2006. Since its inception, the department has contributed to supplying scientific and environmental institutions with academically and practically qualified professionals.

The department offers a comprehensive academic program at the undergraduate level, in addition to a postgraduate program covering various environmental specializations.

The department has graduated 14 cohorts, totaling 858 male and female students. As for postgraduate studies, 103 students have graduated over the course of seven cohorts. Many of them have joined the workforce in various environmental and health sectors, as well as in education and other fields.

Currently, the number of undergraduate students enrolled in the department is 339. Students were admitted with a minimum score of 61.57 and a maximum of 64.86. The number of postgraduate students currently enrolled is 32, in both the coursework and research stages.

Vision, Mission, and Objectives of the Department of Environmental Science

Vision:

The department strives to provide a stimulating academic and educational environment that attracts outstanding students who are passionate about their field of study and the programs designed for them. The aim is to equip them with the necessary scientific skills and values to become successful individuals in both their personal and professional lives, capable of assuming national responsibility by applying their expertise to serve society and the labor market. The department also aims to graduate students who contribute to environmental conservation and societal well-being.

Mission:

To elevate scientific awareness through the academic and social opportunities available to environmental science students during their university life. The mission focuses on developing the graduate's personal skills to sustain and enhance key environmental elements—air, water, and soil—that are vital to daily life. These elements represent critical issues that we continuously interact with. Furthermore, the department seeks to prepare a generation equipped with the best scientific environmental programs supported by a broad academic background, enabling them to acquire knowledge and experience. It also aims to prepare students to play a constructive role in society and the workforce, enabling them to face challenges and fulfill their responsibilities as productive individuals. The department is committed to ensuring that its graduates contribute to achieving sustainable development goals across Iraq, particularly in making Nineveh Governorate and other Iraqi cities among the most livable places in the world—for current and future generations—while also preserving biodiversity.

Department Objectives:

١. To provide students with comprehensive knowledge in various fields of environmental science.
٢. To develop environmental skills and scientific background to qualify graduates for higher studies, scientific research, or professional practice, enabling them to understand their environment and address its challenges.
٣. To ensure graduates possess a combination of technical and environmental knowledge necessary to achieve their goals.
٤. To prepare graduates with the confidence and competence to work effectively in their field of specialization.
٥. To equip students with the scientific knowledge and skills needed for success in their careers across various governmental institutions.
٦. To prepare dynamic and knowledgeable personnel with a specialized philosophy and the academic and practical skills needed to succeed and earn their degrees.
٧. To ensure graduates possess an advanced scientific understanding of the relationship between humans and their environment, enabling them to apply scientific advancements, modern technologies, policies, and software to address complex environmental problems.

Message from the Head of Department

In a world where environmental challenges are rapidly accelerating, science remains our compass toward balance. At the Department of Environmental Sciences, we prepare our students to become agents of change with a deep understanding of ecological systems. We combine theoretical knowledge with practical application to address Iraq's pressing environmental issues.

We believe that every conscious idea has the power to make a difference toward a more sustainable future. We welcome you to an inspiring academic environment—where real impact begins, and responsibility takes flight.

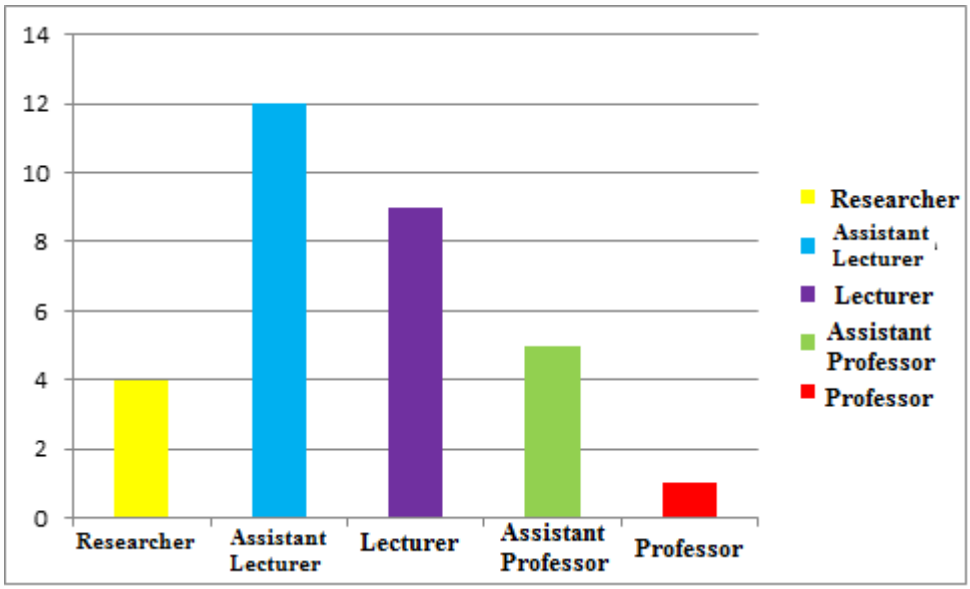
Dr. Mohammed Ibrahim Khalil Al-Taee

Heads of the Department of Environmental Science

Name	Term of Service
Dr. Yahya Dawood Al-Mashhadani	2006 - 2011
Dr. Ahmed Noori Mahmood	2011 - 2012
Dr. Mazin Nazar Fadhel Al-Sinjari	2012 - 2017
Dr. Rasheed Mahmood Yousif	2017 - 2020
Dr. Mohammed Ibrahim Khalil Al-Taee	2020 - 2021
Dr. Rasheed Mahmood Yousif	2021 - 2022
Dr. Ahmed Noori Mahmood	2022 - 2023
Dr. Mohammed Ibrahim Khalil Al-Taee	2023 – Present

Academic Staff

he Department of Environmental Sciences comprises a distinguished academic and technical staff who play an active role in achieving the goals of the educational and research process. The academic staff includes **29 faculty members** with diverse academic ranks and specializations, reflecting a wide range of expertise in fields related to environmental sciences.



A list of the faculty members, their academic titles, and their general and specific specializations

No.	Name	Academic Title	Specialization (General)	Specialization (Detailed)	Email
١	Dr. Mohammed Ibrahim Khalil	Professor	Biological Sciences	Molecular Biology	mohammadibrahim@uomosul.edu.iq
٢	Dr. Mohammed Waleed Saeed	Lecturer	Earth Sciences	Sedimentology	Mws3000@uomosul.edu.iq
٣	Bilal Salim Dawood	Lecturer	Biotechnology	Biotechnology	bilalaltaei@uomosul.edu.iq
٤	Dr. Mazin Nazar Fadhel	Assistant Professor	Biological Sciences	Environment and Pollution	Dr.mazin@uomosul.edu.iq
٥	Dr. Ahmed Noori Mahmood	Assistant Professor	Physics	Materials Science	ahmednoori@uomosul.edu.iq
٦	Dr. Ayman Mohammed Jabr	Assistant Professor	Veterinary Medicine	Public Health	aymanalbanna@uomosul.edu.iq
٧	Dr. Rawa Mahmood Dawood	Assistant Professor	Biological Sciences	Microbial Ecology	rawaahamoshi@uomosul.edu.iq
٨	Dr. Ansam Ahmed Saadoun	Lecturer	Botany / Biological Sciences	Environment and Pollution	ansamahmed@uomosul.edu.iq
٩	Dr. Faten Khalil Ibrahim	Lecturer	Biological Sciences	Botany	fatinalatrakche@uomosul.edu.iq

١٠	Dr. Noor Maysar Sadiq	Lecturer	Biological Sciences	Biological Sciences	noormoyasar@uomosul.edu iq.
١١	Dr. Suhair Muneer Dawood	Lecturer	Chemistry	PhysicalOrganic Chemistry	suheralsaaty@uomosul.edu. iq
١٢	Dr. Enas Hazem Hameed	Lecturer	Earth Sciences	Stratigraphic Paleontology	inasalkhafaf٧@uomosul.edu.iq
١٣	Dr. Marwa Nazar Abdul Fattah	Lecturer	Chemistry	Industrial Chemistry	marwa.albeeram@uomosul.edu.iq
١٤	Dr. Ahmed Riyadh Al-Iraqi	Lecturer	Environmental Sciences	Renewable Energy	ahmedaliraqi@uomosul.edu iq.
١٥	Misha'al Ali Mohammed	Lecturer	Biological Sciences	Mycology	mishoalalanzi٨@uomosul.edu.iq
١٦	Saad Mohammed Hasan	Assistant Lecturer	Environmental Sciences	Environmental Sciences	saadmh@uomosul.edu.iq
١٧	Fanar Nayef Jirdu	Assistant Lecturer	Computer Science	Computer Science	Fnr.neif@uomosul.edu.iq
١٨	Amina Basel Mohammed	Assistant Lecturer	Environmental Sciences	Environmental Sciences	Amina_basil@uomosul.edu.iq
١٩	Sarah Bassam Idrees	Assistant Lecturer	Environmental Sciences	Environmental Change and International Development	saraedrees@uomosul.edu.iq
٢٠	Mohammed Natheer Thanoon	Assistant Lecturer	Plant Protection	Plant Diseases	mohamad.alfattah@uomosul.edu.iq
٢١	Hussam Al-Deen Thanoon Ali	Assistant Lecturer	Agriculture and Forestry	Soil Science	hussamaddin@uomosul.edu.iq
٢٢	Sufyan Hisham Abdulrahman	Assistant Lecturer	Ecology	Oil Pollution	sufyanalsamman@uomosul edu.iq.
٢٣	Noor Abdulghani Salih	Assistant Lecturer	Environmental Sciences	Energy and Environmental Sciences	noorabdalkauy@uomosul.edu.iq
٢٤	Doaa Ziyad Al-Kateb	Assistant Lecturer	Finance and Banking Sciences	Financial Management	duaa.alkatib@uomosul.edu.iq
٢٥	Muthanna Waad Mohammed	Assistant Lecturer	Environmental Sciences	Environmental Sciences	muthana.waad@uomosul.edu.iq
٢٦	Sana Rabeea Qasim	Assistant Lecturer	Environmental Sciences	Environmental Sciences	sana@uomosul.edu.iq
٢٧	Asar Ihsan Abdullah *(PhD student)*	Assistant Lecturer	Chemistry	Biochemistry	Aser.abdullah@uomosul.edu.iq
٢٨	Ayad Mohammed Khalaf *(PhD student)*	Assistant Lecturer	Biological Sciences	Biological Sciences	ayad٨٢@uomosul.edu.iq
٢٩	Soha Saad Ali *(PhD student)*	Assistant Lecturer	Chemistry	Physical Chemistry	suhasaaad@uomosul.edu.iq

Technical Staff

The department includes 13 technical staff members with diverse skills and specializations, forming a fundamental pillar in supporting the practical aspects of curricula and laboratories.

List of Technical Staff in the Department

No.	Name	Specialization
1	Areej Khazal Ali	Life Sciences / Microbiology / Chief Biologist
2	Areej Abdul Ghani Mohammed	Computer Sciences / Assistant Chief Programmer
3	Asraa Abdul Basit Abdul Jabbar	Chemistry / Chief Chemist
4	Asmaa Jassim Mohammed	Life Sciences / Microbiology / Chief Biologist
5	Amna Ahmed Hazim	Environmental Sciences / Health and Environment Researcher
6	Dalal Salah Sadiq	Environmental Sciences / Health and Environment Researcher
7	Zeina Taha Mohammed	Life Sciences / Chief Biologist
8	Zeina Mohammed Majid	Management and Economics / Assistant Director
9	Suha Waleed Ghanem	Physics / Chief Physicist
10	Shahad Khaled Khalil	Chemistry / Assistant Chemist
11	Abdullah Kamil Abdul Jabbar	Environmental Sciences / Health and Environment Researcher
12	Ali Mueid Mohammed	Chemistry / Chief Chemist
13	Fatima Ahmed Mahmoud	Life Sciences / Microbiology / Chief Biologist
14	Mohammed Salah	Life Sciences / Chief Researcher
15	Mohammed Abbas Saleh	Technology Institute / Technical Director
16	Nadia Ghani Saad Allah	Chemistry / Chief Chemist
17	Noor Saad Ali	Computer Sciences / Assistant Chief Programmer
18	Noor Waleed Ahmed	Environmental Sciences / Environmental Health Researcher
19	Heba Abdul Ilah	Life Sciences / Senior Biologist

Department Committees

١. **Library Committee**: Overseeing the library and managing the borrowing of master's theses (both printed and electronic).
٢. **Registration Committee**: Registering new first-year students and processing student enrollments for all levels at the beginning of the academic year.
٣. **Student Affairs Committee**: Communicating with students, addressing their needs, and resolving their issues.
٤. **Follow-up Committee**: Monitoring departmental affairs, workshops, and seminars.
٥. **Computer Committee**: Supervising the computer lab and maintaining/updating departmental computers.
٦. **Laboratory Materials Committee**: Overseeing the chemical storage room and organizing the distribution of chemicals to faculty, senior project students, and graduate students.
٧. **Maintenance Committee**: Repairing malfunctions in equipment and departmental facilities.

Graduation Requirements

Academic Requirements:

- Completion of accredited study hours.
- Passing all academic courses.
- Completion of a graduation project in the fourth year.
- Completion of summer training.

Administrative Requirements:

- Clearance (from the library, departments, dormitories, labs, etc.)
- Personal documents:
  - Copy of high school diploma.
  - Recent personal photos.
  - National ID or unified card.
- Tuition fees (for non-free study cases).

Department Curriculum

First: Course System

First Stage

Name of the subject	Course Code	Units
Analytical Chemistry	ENV 108	6
Biology	ENV 102	6
Physics	ENV 101	6
Computer	ENV 112	6
Geology	ENV 103	6
English Language	ENV 111	4
Mathematics	ENV 105	4
Organic Chemistry /2nd course	ENV 104	3
Human Rights	ENV 106	4

Second Stage

2nd Semester			1st Semester		
Name of the subject	**Course Code**	**Units**	**Name of the subject**	**Course Code**	**Units**
Environmental Geology	ENV 203	٤	**Surveying And Engineering Drawing**	ENV 213	4
Environmental Chemistry I	ENV 205	٣	**Environmental Chemistry II**	ENV 203	3
Principles of Ecology	ENV 201	٣	**Plant Environment**	ENV 202	3
Animal Taxonomy	ENV 211	٣	**Plant Taxonomy**	ENV 208	3
Biochemistry	ENV 209	٣	**Microbiology**	ENV 207	3
Environmental Statistics	ENV 202	٣	**Hydrology**	ENV 210	3
Democracy	ENV 206	٢	**Climatology**	ENV 212	2

Third Stage

2nd Semester			1st Semester		
Name of the subject	**Course Code**	**Units**	**Name of the subject**	**Course Code**	**Units**
Mycology	ENV 302	٣	**Environmental Toxicology**	ENV 312	3
Water Pollution	ENV 308	3	**Microbial Environment**	ENV 307	3
Food Pollution	ENV 303	3	**Phycology**	ENV 311	3
Solid Waste Management	ENV 305	3	**Sewage Water Treatment**	ENV 313	3
Soil Pollution	ENV 310	٢	**Remote Sensing Applications**	ENV 314	٤
Air Pollution	ENV 301	2	**Biodiversity**	ENV 304	2
Environmental Education	ENV 306	2	**Environmental Impact Assessment**	ENV 315	2
Environmental Planning	ENV 309	2	**Environmental Management**	ENV 316	2

Forth Stage

2nd Semester			1st Semester		
Name of the subject	**Course Code**	**Units**	**Name of the subject**	**Course Code**	**Units**
Training And Applications Field	ENV 406	3	**Graduation Project**	ENV 407	6
Environmental Laws And Regulations	ENV 401	3	**Environmental Techniques**	ENV 412	3
Environmental Health And Safety	ENV 404	3	**Environmental Costs**	ENV 408	2
Sustainable Development	ENV 402	2	**Radiation Pollution**	ENV 410	2
Atmospheric Chemistry	ENV 403	2	**Environment of Nano-Techniques**	ENV 409	2
Environmental Physics	ENV 411	2	**Renewable Energy**	ENV 405	2

Republic of Iraq - Ministry of Higher Education and Scientific Research

University of Mosul

Bachelor's degree in College Of Enviromental Science and Technologies (First cycle)

Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr

Program Curriculum (2023 - 2024)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي

جامعة الموصل

بكالوريوس في كلية علوم البيئة وتقاناتها (الدورة الأولى)

أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة

المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Second: Bologna System

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGI	One	1	Env101	General Physics	فيزياء عامة	English	3		2			1	3	78	72	150	6.00	B	
		2	Env102	General Biology	علم الاحياء	English	3	1	2				3	93	82	175	7.00	B	
		3	Env103	General Geology	علم الارض	Arabic	2		2			1	3	63	87	150	6.00	B	
		4	Env104	Organic Chemistry	كيمياء عضوية	Arabic	3	1	2				3	93	82	175	7.00	B	
		5	Uom105	Arabic Language	اللغة العربية	Arabic	2						3	33	17	50	2.00	S	
		6	Uom106	Freedom and Democracy	حرية وديمقراطية	Arabic	2						3	33	17	50	2.00	S	
						Total	15	2	8	0	0	2	18	393	357	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGI	Two	1	Env107	Biostatistics	احصاء حياتي	English	2		2		1		3	78	72	150	6.00	C	
		2	Env108	Analytical Chemistry	كيمياء تحليلية	Arabic	3	1	2				3	93	82	175	7.00	B	Env104
		3	Env109	Soil Science	علم التربة	Arabic	2		2				3	63	37	100	5.00	B	
		4	Env110	Ecology	علم البيئة	Arabic	2		2				3	63	87	150	7.00	C	
		5	Uom111	English Language	اللغة الانكليزية	English	2				1	1	3	48	52	100	2.00	S	
		6	Uom112	Computer	حاسبات	Arabic	1		1				3	33	42	75	3.00	S	
						Total	12	1	9	0	2	1	18	378	372	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGII	Three	1	Env201	Genetics	علم الوراثة	English	2		2			1	3	63	62	125	5.00	B	Env102
		2	Env202	Plant Environment	بيئة نبات	Arabic	2	1	2				3	78	72	150	5.00	C	
		3	Env203	Environmental Geology	جيولوجيا بيئية	Arabic	1	1	2				3	63	62	125	4.00	C	Env103
		4	Env204	Pollution Fundamentals	اساسيات التلوث	Arabic	3		2				3	78	72	150	5.00	C	
		5	Env205	Environmental Chemistry	كيمياء بيئية	Arabic	2	1	3				3	93	57	150	5.00	C	
		6	Env206	Environmental Legislation and Law	انظمة وقوانين بيئية	Arabic	2					1	3	33	17	50	2.00	C	
		7	Env207	Arabic language	لغة عربية	Arabic	2						3	33	17	50	2.00	C	
		8	Env208	A l Baath party crimes	جرائم حزب البعث	Arabic	2						3	33	17	50	2.00	C	
						Total	16	3	11	0	0	2	24	474	376	850	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGII	Four	1	Env207	Microbial Environment	بيئة احياء مجهرية	English	2		2				3	63	62	125	5.00	C	
		2	Env208	Plant Taxonomy	تصنيف نبات	Arabic	2	1	2				3	78	72	150	6.00	C	
		3	Env209	Biochemistry	كيمياء حياتية	Arabic	2		2				3	63	37	100	4.00	B	
		4	Env210	Climatology	علم المناخ	Arabic	3						3	48	52	100	4.00	C	
		5	Env211	Animals Taxonomy	تصنيف حيوان	Arabic	2		2				3	52	48	100	4.00	C	
		6	Env212	Enviromental Impact Assessment	تقييم الاثر البيئي	Arabic	2	1					3	48	27	75	3.00	C	
		7	Env213	English Language	اللغة الانكليزية	English	2						3	33	17	50	2.00	S	
		8	Env214	Computer	حاسبات	Arabic	1		1				3	33	42	75	3.00	S	
						Total	16	2	9	0	0	0	24	418	357	775	31.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGIII	Five	1	Env301	Air pollution	تلوث هواء	English	2		2		1		3	78	47	125	5.00	C	
		2	Env302	Aquatic Ecology	بيئة مائية	Arabic	2	1	2				3	78	72	150	6.00	C	
		3	Env303	Animal Ecology	بيئة حيوان	Arabic	2	1	2				3	78	72	150	6.00	C	
		4	Env304	Biodiversity	تنوع حياتي	Arabic	2	1	2				3	78	72	150	6.00	C	
		5	Env305	Ecological Physiology	فسلجة بيئية	Arabic	2		2				3	63	62	125	5.00	C	
		6	Env306	Environmental Tecchnology	تقنيات بيئية	Arabic	1		1				3	33	17	50	2.00	C	
						Total	11	3	11	0	1	0	18	408	342	750	30.00		

UGIII	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
	Six	1	Env307	Molecular Biology	بيولوجي جزيئي	English	2		2			1	3	63	27	90	3.60	C	
		2	Env308	Water Pollution	تلوث مياه	Arabic	2	1	2				3	78	72	150	6.00	C	
		3	Env309	Insects	حشرات	Arabic	2	1	2				3	78	72	150	6.00	B	
		4	Env310	Soil pollution	تلوث تربة	Arabic	2	1	2				3	78	72	150	6.00	C	
		5	Env311	phycology	طحالب	Arabic	2	1	2				3	78	47	125	5.00	B	
		6	Env312	Radioactive Pollution	تلوث اشعاعي	Arabic	2						3	33	52	85	3.40	C	Env101
						Total	12	4	10	0	0	1	18	408	342	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
UGIV	Seven	1	Env401	Graduation project	مشروع التخرج	Arabic				5			3	78	97	175	7.00	C	
		2	Env402	Sustainable Development	تنمية مستدامة	Arabic	3	2					3	78	97	175	7.00	C	
		3	Env403	Remote Sensing	تحسس نائي	Arabic	3	2					3	78	72	150	6.00	C	
		4	Env404	Environmental Health	صحة بيئية	English	2			1			3	48	77	125	5.00	C	
		5	Env405	Renewable Energy	طاقة متجددة	Arabic	3	1					3	63	62	125	5.00	C	
						Total	11	5	#REF!	6	0	0	15	345	405	750	30.0		

UGIV	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)							
	Eight	1	Env407	Graduation project	مشروع التخرج	Arabic				5			3	78	97	175	7.00	C	
		2	Env408	Green Chemistry	كيمياء خضراء	Arabic	2	1	2				3	78	97	175	7.00	C	
		3	Env409	Epidemiology	علم الاوبئة	English	2	1			2		3	78	72	150	6.00	C	
		4	Env410	Planning and Environmental Management	تخطيط وادارة بيئية	Arabic	2	1					3	48	77	125	5.00	C	
		5	Env411	Toxicology	علم السموم البيئي	Arabic	2		2			1	3	63	62	125	5.00	C	
						Total	8	3	4	5	2	1	15	345	405	750	30.0		
						Total	101	23	#REF!	11	5	7	150	3169	2956	6125	241.0		Must be 240 ECTS

Note: The student should complete 4 weeks of Summer Internships to fullfil the requirements of the Bachelor's degree

Structured SWL (hr/w) type			Module type			SWL:	Student Workload
	CL	Class Lecture		B	Basic learning activities		
	Lab	Laboratory		C	Core learning activity	SSWL:	Structured SWL
	Pr	Practical Training		S	Suport or related learning activity	USSWL:	Unstructured SWL
	Tut	Tutorial		E	Elective learning activity		
	Lect	Online lecture					
	Semn	Seminar					

Note: Columns O, Q and R are progrmaed, protected and should not be edited

Career Opportunities for Graduates

1. Government Sector

- **Ministry of Environment / Environmental Departments**:
  - Environmental inspector.
  - Air, water, and soil quality analysis and monitoring.
  - Environmental Impact Assessment (EIA) reports.
- **Ministry of Health / Environmental Health Department**:
  - Monitoring environmental and health pollution sources.
  - Drinking water and wastewater quality assessment.
  - Supporting environmental and health awareness campaigns.
- **Ministry of Municipalities / Planning / Water Resources**:
  - Waste management.
  - Sustainable urban planning.
  - River and water body monitoring.

2. Private Sector

- **Oil and Industrial Companies**:
  - Environmental specialist for emissions and discharges monitoring.
  - Environmental compliance reports.
  - Implementing environmental management systems (ISO 14001).
- **Engineering and Environmental Consulting Firms**:
  - Conducting EIA studies for projects.
  - Collecting and analyzing field environmental data.
  - Developing environmental protection plans.
- **Renewable Energy Companies**:
  - Feasibility studies for solar and wind energy projects.
  - Supporting green transition projects.

3. Academic and Research Sector

- **Universities and Institutes**:
  - Lecturer or research assistant (after completing graduate studies).
  - Contributing to environmental labs and applied research.
- **Environmental Research Centers**:
  - Working on climate change and biodiversity monitoring projects.
  - Analyzing environmental data and issuing policy recommendations.

4. International Organizations and NGOs

- Working on sustainable development projects.
- Implementing environmental awareness campaigns.
- Providing technical consultations in climate, water, and waste projects.

5. Other Indirect Opportunities

- Health, Safety, and Environment (HSE) roles.
- Environmental disaster response training.
- Entrepreneurship in recycling or organic farming.

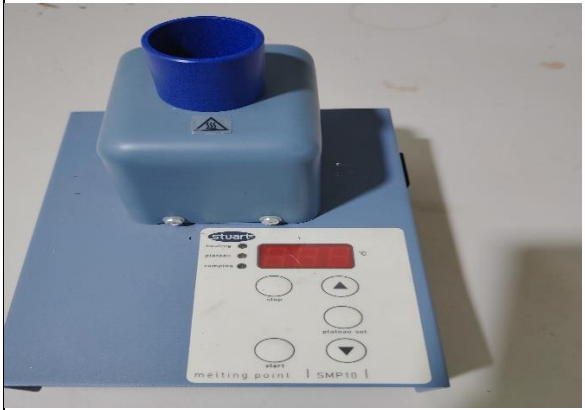
Laboratory Equipment

١- Biology Laboratory

No.	Device Name	Device Description	Device Image
١	**Autoclave**	Used for sterilizing culture media and disposing of media containing microorganisms	
٢	**pH Meter**	Used to measure the pH (acidity or alkalinity) of a given liquid	
٣	**Electric Oven**	Used for sterilizing and drying glassware and other materials.	
٤	**Analytical Balance**	Used to weigh materials with very small masses.	

٥	**Incubator**	Provides suitable temperature conditions for the growth of microorganisms on media.	
٦	**Hot Plate**	Used to heat and raise the temperature of chemicals and solutions in a controlled way.	
٧	**Microscope**	Used to observe the internal structures of plant and animal samples	
٨	**Inoculation Room**	Used for culturing microorganisms and performing various preparations	

٢- Chemistry Laboratory

No.	Device Name	Device Description	Device Image
١	**Distillation Apparatus**	Used to obtain distilled water	
٢	**pH Meter**	Used to measure the pH (acidity or alkalinity) of a given liquid	
٣	**Electric Oven**	Used for sterilizing and drying glassware and other materials	
٤	**Melting Point Apparatus**	Used to determine the temperature at which a solid substance melts	

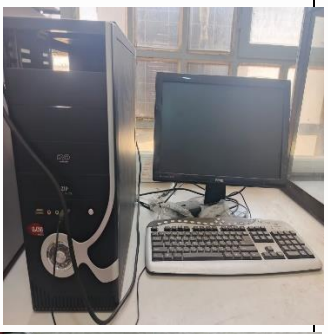
٥	**furnace**	A heating device used to control very high temperatures.	
٦	**HOT plate stirrer**	Used to heat and raise the temperature of chemical substances and solutions in a controlled way.	
٧	**Centrifuge**	Used to separate components in liquid samples based on their density	
٨	**Fume Hood**	Used to protect workers from harmful fumes, gases, and volatile chemicals during experiments	

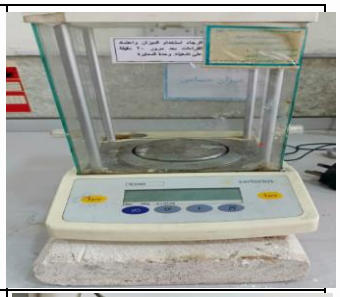
٩	**Water Bath**	Used in laboratories to Heat samples or materials at a constant temperature for extended periods	
١٠	**Conductivity Meter**	Used to measure the electrical conductivity of solutions	
١١	**Turbidity Meter**	Used to measure the turbidity or clarity of liquids.	
١٢	**UV-spectrometer**	Used to measure wavelengths of ultraviolet light absorbed by samples.	

٣- Graduate Studies Laboratory 1

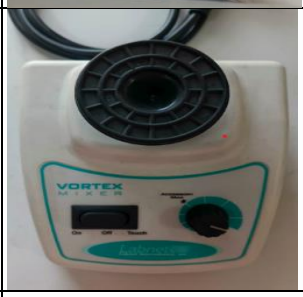
No.	Device Name	Device Description	Device Image
١	**Oven**	Sterilizes laboratory glassware, removes microbial contamination, and dries samples.	
٢	**Oven**	Sterilizes laboratory glassware, removes microbial contamination, and dries samples.	
٣	**Oven**	Sterilizes laboratory glassware, removes microbial contamination, and dries samples.	
٤	**Oven**	Sterilizes laboratory glassware, removes microbial contamination, and dries samples.	

٥	**Oven**	Sterilizes laboratory glassware, removes microbial contamination, and dries samples.	
٦	**Fungal Incubator**	Provides a stable and ideal environment for fungal growth, enhancing productivity and healthy development.	
٧	**Bacterial Incubator**	Provides a suitable environment for bacterial growth, allowing various studies and research to be conducted.	
٨	**Fungal Hood**	Prevents contamination, provides ventilation, protects against fires and explosions, and safeguards from biological and chemical hazards.	
٩	**Bacterial Hood**	Prevents contamination, provides ventilation, protects against fires and explosions, and safeguards from biological and chemical hazards.	

١٠	**Heater**	Used in a variety of laboratory applications, making it a versatile and useful tool in different types of labs.	
١١	**Copmuter**	Increases productivity, facilitates scientific research, and simplifies processes, saving time and effort.	
١٢	**Autoclave**	Used for sterilization and disposal.	
١٣	**Microscope**	Magnifies very small objects that cannot be seen with the naked eye.	
١٤	**Microscope**	Magnifies very small objects that cannot be seen with the naked eye.	
١٥	**SingIe stage vacuum pump**	Used for vacuum filtration, sample concentration, and analysis.	

١٦	**Analytical Balance**	Provides highly accurate measurements of materials.	
١٧	**Shaker**	Used to mix, blend, or agitate materials in various containers evenly and homogeneously.	
١٨	**Shaking Incubator**	Provides a suitable environment for the growth of microorganisms and cells with shaking.	
١٩	**Atomic Spectrometer**	Used to identify and measure the concentration of elements in various samples.	
٢٠	**Refrigerator**	Stores samples, chemicals, and other temperature-sensitive materials to maintain their safety and efficacy.	

٤- Graduate Studies Laboratory 2

No.	Device Name	Device Description	Device Image
١	**ENDURO**	For analysis such as measuring the chemical and physical parameters of the sample.	
٢	**VORTEX**	Rapid mixing of liquids and sample preparation.	
٣	**Spectra fuge**	Separation of molecules based on their mass and determining their proportion in the sample.	
٤	**Water Testing**	Measuring the amount of dissolved Oxygen in water or other liquids.	
٥	Drying Bath	Drying glassware and maintaining the integrity of materials.	
٦	Centrifuge	Separating different materials based on their density by spinning them at high speed.	

٧	**Fiame photometers**	Analyzing chemical elements by heating the sample in a flame and measuring the emitted light.	
٨	Autoclave	Killing harmful microorganisms on tools and equipment.	
٩	**ups**	Providing backup power for electronic devices.	
١٠	**pCR**	Detecting the genetic material of a pathogen or an abnormal cell.	
١١	**UV**	Measuring light absorption by a substance in the UV-visible range of the spectrum.	
١٢	**Freezer**	Storing materials that require low temperatures.	
١٣	**ENDURO EIectrophoresis systems**	Used to separate DNA, RNA, or proteins	

Contact the Department

Official Email	**env.sci.ev@uomosul.edu.iq**
Website	**Department of Environmental Sciences**
Social Media	**College of Environmental Sciences (Facebook)**
Address	**Location**