The Ministry of Higher Education and Scientific Research

University of Mosul

College of Science

Depatment of Biology

Self-evaluation

Biology Department Report

According to ABET Standards

2023-2024

https://uomosul.edu.iq/en/science/biology-department/

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https://uomosul.edu.iq/en/science/biology-department/

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Introduction:

Based on the directives of the Honorable Minister of Higher Education and Scientific Research on the necessity of developing universities and educational institutions, His Excellency instructed the establishment of a center for ensuring quality and reliability through which the scientific services provided by the Ministry and its educational institutions are matched with international quality standards, taking into account the current and future needs of Iraqi society, with the aim of graduating Qualified cadres capable of meeting these needs.

Starting and based on the commitment of the Department of Biology/College of Science/University of Mosul to establish and apply quality practices to support the university's mission towards achieving its strategic goals and reaching global leadership, a self-evaluation report was written.

The self-evaluation in accordance with the "ABET Program Accreditation Standards" is an examination of the overall functions and activities of the department, taking into account the mission and objectives of the department, justifying the analysis in detail with conclusions and evidence, and taking the advice of others who are able to provide independent comments. The responsibility for conducting the self-study falls on those in charge of the department so that everyone is committed to conducting an objective, subjective and scientific evaluation, and the evaluation is an effective means of reviewing the strengths and weaknesses of the department.

The goal of the report is to make changes that contribute to raising the level of performance, supporting strengths, and eliminating weaknesses through work that achieves the standards of the ABET accreditation program, giving a comprehensive overview of the level of activities, services, and educational programs provided by the department, knowing the levels of students, and ways to improve the educational reality, and determining whatever it might be needed such as training courses, development programs, ensuring the quality of the department's outputs, and programs to ensure the effectiveness of ongoing quality processes and procedures.

Self-evaluation has already been implemented in our department according to "ABET," which constitutes the first steps for academic accreditation. The evaluation results of the interviewers and those of our department are supported by evidence and can be referred to as documents kept in the Quality Assurance and University Performance Division (QAUPD).

The self-evaluation report is a document that covers the following aspects:

1- Students, including student performance, counseling and assessment.

2- The program's educational objectives, in line with the profession's program, are based on the needs of the program's components (the profession), and the evaluation is periodic.

3- Program outcomes, consisting of the skills and knowledge that Biology students have and are expected to obtain upon graduation.

4- Continuous improvement.

5- Curricula.

6- Department members, including the competence of faculty members, and appropriate qualifications.

7- The department building, including classrooms, laboratories, and associated equipment.

8- Support, including adequate financial funding and ancillary staff (secretarial, technicians, IT, etc.) to support the programmed.

Chapter I

Description of Biology Department

General Information:

Name of the Institution: Ministry of Higher Education/University of Mosul/ College of Science/ Biology Department
Website: **https://uomosul.edu.iq/en/science/biology-department/**
Type of Institution: Governmental
Establishment date: 1964
Dates of: Undergraduate Studies 1964; Graduate Studies (Master) 1968; Doctorate 1989.
Language of Study: English.
Duration of Undergraduate: 4 years.
Duration of Graduate (Master): 2-3 years.
Duration of Graduate (Ph.D.): 3-4 years.

Department Contact Information:

Head Department:

Prof. Dr. Amjad Abdul-Hadi Mohammed

Iraq- Mosul- University of Mosul- College of Science- Biology Dept.

Mobile: 07731313582

Email: amjsbio33@uomosul.edu.iq

Director of the Department:

Asst. Prof. Dr. Rayan M. Faisal

Iraq- Mosul- University of Mosul- College of Science- Biology Department

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Email: rayanmazin@uomosul.edu.iq

Asst. Prof. Dr. Alaa Hussein Ali

Iraq- Mosul- University of Mosul- College of Science- Biology Department

Mobile No. 07740868507

Email: alaasbio63@uomosul.edu.iq

History, Demonstration, Scope of Activities, and Achievements of the Department:

The Department of Biology / University of Mosul was established in 1964. Biology is one of the branches of modern natural sciences. It is a broad field in the fields of human knowledge and is considered as a basis for all sciences that study life and its phenomena. At the same time, it is the solid foundation of modern health sciences. Biology also reveals the vital phenomena and processes that occur in living organisms and helps in diagnosing diseases. On this basis, biological science has occupied great importance among the sciences, and has entered the fields of health, agriculture, food industries, laboratory analyzes and environmental treatments.

The Department of Biology has built a good academic program that matches its counterparts around the world by emphasizing the integrated theoretical and practical aspects of the field of study of Biology, and the curriculum is constantly updated. The duration of undergraduate study in the department is four years; From the moment we receive first-year students, whose average grades from high school qualify them to join, until the final year students graduate, where they receive a bachelor's degree in biology.

Later, graduate studies (Master) began in the Department of biology in 1968, and then later in 1989 the graduate studies (Doctorate) were started.

In recognition of the university's role in preparing specialized cadres in the fields of biology and with the aim of reaching the highest levels of knowledge and advancing the individual and society. The vision of the department is to be complementary to the mission and objectives of the College of Science, to serve the Iraqi community, to constantly interact with developments in the field of knowledge, and to be fully keen on industrious and tireless minds, transferring ideas from academic fields to applied fields, and solving the problems facing our country.

Vision, Message, and Goals of the Department:

Vision:

Exert strenuous efforts to apply the latest scientific curricula that combine the basics and continuous development to serve the community and exceed in disseminating knowledge in the fields of biology (botany, zoology, and microbiology) to obtain high levels of performance for faculty members and students.

Massage:

The department's mission includes updating and disseminating information in various fields of biology (botany, zoology, and microbiology) and making efforts to hone students' talents and develop their potential to help develop and advance society and build graduates with professional expertise that will make them enjoy good opportunities locally and globally.

Goals:

The biology department aims to:

1- A comprehensive study of biological sciences and their applications and uses in society from a theoretical, scientific and applied perspective.

2- Preparing scientific cadres at the primary and higher levels to work in the medical, health, agricultural, food, oil and pharmaceutical industries, and biological branches.

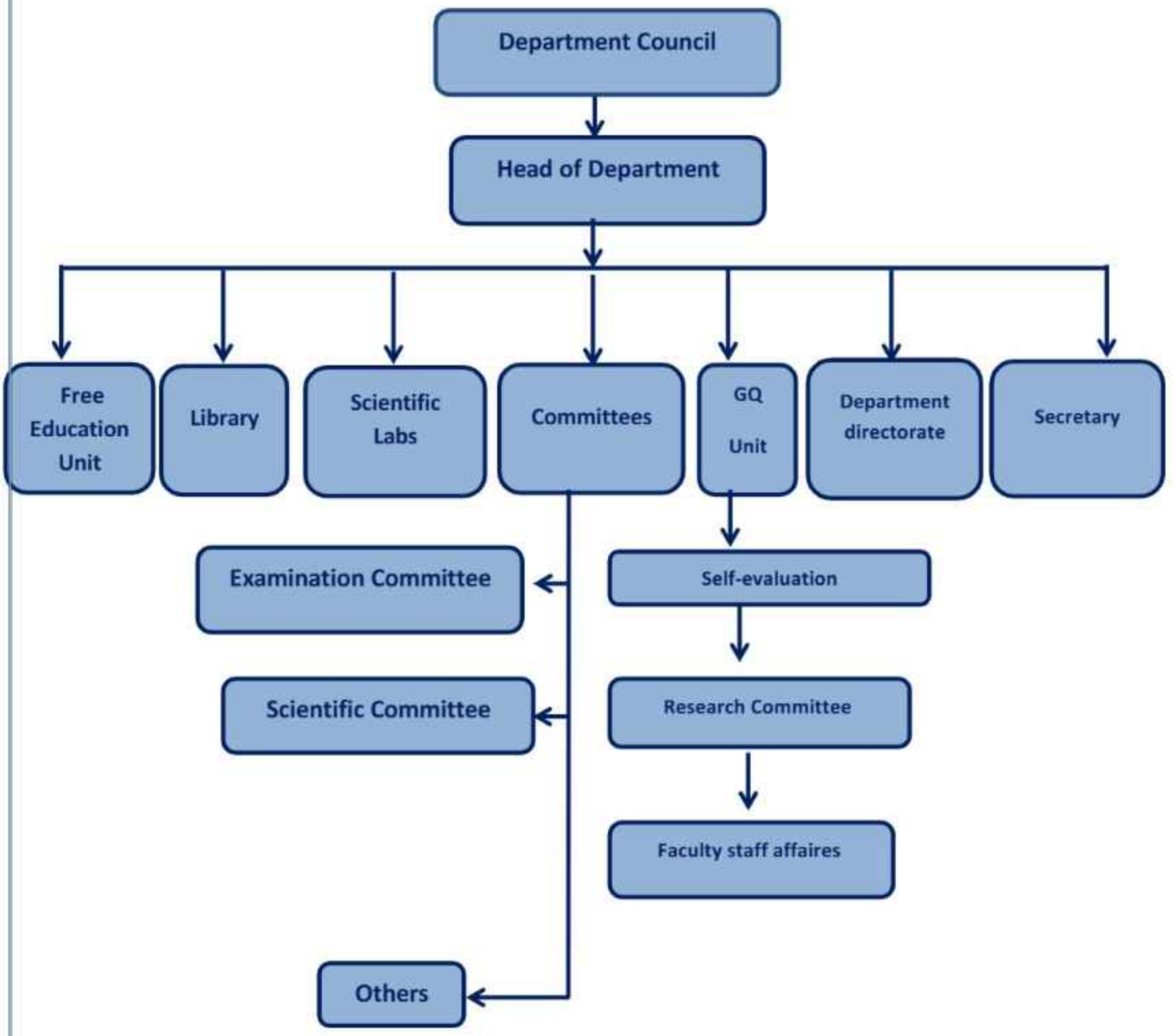
3- Students acquire scientific techniques in using devices and equipment that can be used in their theoretical and applied studies.

4- Students acquire academic and applied information about biological sciences and their various trends and specializations.

5- Providing state institutions and the mixed and private sectors (medical, industrial and laboratory institutions) with primary and senior specialized cadres to work in this field.

6- Research and study every updating in biological sciences, keep up with scientific developments in this field, and include them within the prescribed school curricula.

Organizational and Administrative Structure of Biology Dept.:



Heads of the Department:

Dr. Rafeea Al- Hafidh	1967-1967
Dr. Andjan Peer	1967-1971
Dr. Mahmood H. Kaseem	1971-1975
Dr. Zohair Al-Sharoog	1975-1976
Dr. Tareeq M. Salih	1976-1981
Dr. Gabriel Barsoom	1981-1984
Dr. Tareeq M. Salih	1984-1990
Dr. Kosye Al-Galabee	1990-1994
Dr. Nadeem A. Ramadan	1994-1995
Dr. Yahia D. Wahab	1995-2001
Dr. Hanaa M. Saeed	2001-2003
Dr. Sobhe H. Kalaf	2003-2003
Dr. Kosye Al-Galabee	2003-2008
Dr. Nadeem A. Ramadan	2008-2011
Dr. Hussein E. Arteen	2011-2015
Dr. Nadeem A. Ramadan	2016 -2019
Dr. Raeed S. Al-Saffar	2019 -2023
Dr. Amjad A. Mohammed	2023- till now

Members of Department's Council:

No.	Name	Occupation	Scientific title
1	Dr. Amjad A. Mhammed	Head	Prof.
2	Dr. Alaa H. Ali	Member	Asst. Prof
3	Dr. Amera M. Alrawi	Member	Prof.
4	Dr. Israa Ghanem Al-Sammak	Member	Prof.
5	Dr. Mahmood I. Mohammed	Member	Prof.
6	Dr. Owayes M. Hamed	Member	Prof.
7	Dr. Muntha M. Al-qattan	Member	Asst. Prof
8	Dr. Faten Nori Abed	Member	Asst. Prof

Specialties of the Department:

Biology department includes three main specialties:

1- Botany:

Includes many branches such as Plant physiology, Plant taxonomy, Mycology, Genetics, and others.

2- Zoology:

Includes many branches such as Biochemistry, Histology, Embryology, Parasitology, and others.

3- Microbiology:

Includes many branches such as Immunology, Virology, Bacterial groups, Industrial bacteriology, Food Microbiology, and others.

Department's library:

Includes many books and journals (No. of books 6451/ No. of journals 237).

Free Education Unit:

This unit Includes 12055 books.

Summary of the most important achievements of QGU

Scope of Quality:

1- Writing and implementing boards related to the department's vision, mission, and goals.
2- Preparing questionnaires for students to evaluate the teaching.
3- Follow up on the implementation of the department's self-evaluation standards.
4- Participation in many seminars, workshops and conferences related to quality in Iraq.
5- Holding workshops aimed at improving quality in the department.
6- Holding and attending a scientific course on performance evaluation for department members.
7- Preparing posters and work maps before starting the department's self-evaluation process.
8- Work on periodically coding the new curricula and exam questions.

Scope of University Performance:

1- Completing the department's annual calendar file.
2- Conducting evaluations of faculty staff as well as evaluations of employees.
3- Archiving (automation) of information: electronic documentation of information in the Quality Assurance Division of the department.

The Academic Strategic Plan:

1- A plan for accepting students in the undergraduate studies stage.
2- A plan for accepting postgraduate students.
3- Planning for scientific research and seminars.
4- A plan of educational guidance and activity and preparing conferences, seminars and exhibitions.

Field and scientific trips:

Since its establishment, the department has been working to create a state of interaction between theoretical lectures and scientific reality and what distinguishes biology through visits to hospitals, relevant departments, dairy and alcohol factories, and pharmaceutical laboratories in order to gain insight into the biological and health reality and link theoretical study with practical study.

Conferences and seminars:

The Department of Biology annually sets an integrated program for delivering lectures and seminars in all specializations, in which the department's teachers and postgraduate students contribute by discussing the results of various researches that work to develop scientific research. In addition, there are many participations in biological conferences inside and outside the country that are profitable. Scientifically, he contributes to the development of the teaching staff by giving lectures and giving seminars in relation to these conference.

The department has held three conferences, several seminars, and many workshops and courses.

Titles of some of the activities conducted in the department

Date of held	Title of scientific activity	The scientific activity
2009	The First Scientific Conference for Biology (New Horizons for Biology in Today's Iraq)	Conference
2011	Biology research serves society and seeks its progress	Conference
2018	Creatures entering Iraq	Symposium
2021	Forensic analysis: reality and ambition	Symposium
2022	Forensic analysis: reality and ambition	Symposium
2022	The Second International Scientific Conference for Biology	Conference
2023	Modern biological techniques in forensics and crime detection	Symposium
2023	Drugs and their physiological and psychological harm to humans	Symposium

The Patent:

	Names of participants in the patent	Date obtained	Patent title
1.	• Pro. Dr. Abd al-Muttalib Sayyid Muhammad • Dr. Hanaa Saeed Saleh • Dr. Miqdad Tawfiq	1999/8/23	Production of a new growth regulator (PDA) and its effect on sunflower callus
2.	• Pro. Dr. Abd al-Muttalib Sayyid Muhammad • Dr. Hanaa Saeed Saleh Dr. Miqdad Tawfiq•	1999/8/23	Preparation of a new laboratory growth regulator (AMH), a type of synthetic auxin, and its role in plant tissue culture
3.	• Pro. Dr. Abd al-Muttalib Sayyid Muhammad	2000/7/6	Al-Hadbaa is a new growth regulator of a laboratory plant, a type of cytokines, and its role in tissue culture
4.	Abdul Rahim Ghazal	2013/7/11	The first use of mineral clay as a new pad to completely heal warts that occur due to infection with a virus "Human nipples"
5.	Dr.. Sahar Salem Boutros Dr.. Adiba Younis Sharif	2013/9/16	A modified method for isolating methanogenic archaea from cow dung
6.	-Prof. Dr. Amira Mahmoud Muhammad -Mr. Taha Ahmed Taha -Mrs. Sahira Idris Hamid -Dr.. Ghada Abdel Razaq -M. Mai Abdel Hafez Abdel Qader -Mrs. Shafak Tariq Burhan	2014/5/29	Enhancing concrete resistance using types of bacteria.
7.	Prof. Dr. Amira Mahmoud Muhammad Prof. Dr. Mahmoud Raouf promised Mrs. Aisha wameth ramze	2016/2/11	Manufacturing a local dish with high efficiency in forming bacterial biofilms and determining their treatment concentrations with antibiotics.
8.	Prof. Dr. Amira Mahmoud Muhammad D. Khansa Muhammad Younis	/12/30 2019	Anti-quorum sensing and biofilm formation activity of the Proteus mirabilis bacteria isolated from urinary catheterization patients using some compounds extracted from the Streptomyces rochi sdli bacteria.
9.	Prof. Dr. Amira Mahmoud Muhammad Dr.. Eman Youssef Thanoun	2020/1/19	Producing large amounts of growth of new isolates (with a unique sequence of 16 genes, SrRN23) of Helicobacter pylori using modified simple culture media, a new culture method, and a short time.

10	Prof. Dr. Amira Mahmoud Muhammad D. Alaa Hussein Taha Al-Mawla	2020/2/16	The use of enterotoxin CPE extracted locally from Clostridium perfringens isolates in the treatment of breast cancer.
11	Prof. Dr. Amira Mahmoud Muhammad Mrs. Shafak Tariq Burhan	21 2021/12/	Manufacture of gold nanoparticles by new global species of bacteria Mesobacillus foraminis and Planococcus spp. and Lysinibacillus mangiferihumi
12	Prof. Dr. Amira Mahmoud Muhammad Assistant Prof. Shahaba Abdul Latif Bahjat's Mrs. Sahira Idris Hamid	2022/2/16	New bio art... Bacteria imitate hammering on metal, acrylic plastic sheets... and 3D paintings.
13	Prof. Dr. Amira Mahmoud Muhammad Researcher Sumaya Adnan Saleh Muhammad	2022/7/21	Manufacturing a new medical gum from natural materials to control periodontal tissue pathogens.
14	Prof. Dr. Amira Mahmoud Muhammad Mrs. Sahira Idris Hamid	62022/9/	Biosynthesis of silver nanoparticles loaded with capsaicin and measuring their effectiveness as a treatment for gallbladder and colon cancer and preventing the formation of gallstones caused by Salmonella typhi.
15	Mohsen Ayoub Issa Angham Jabbar Alwan	2020/5/17	The use of fish meat and dates in preparing agricultural media for the development and applications of E. coli bacteria and its strain O157: H7
16	Israa Ghanem Hazem Al-Sammak Nadia Hussein Waad Al-Hayali	/09/12 2022	Biosurfactant production from the local isolate Streptomyces misionensis MN594525, which inhibits the growth of some pathogenic microorganisms.
17	Rojan Ghanem Mohammed Mohamed Ahmed Naguib	2021/2/8	Developing a method to test the effects of insulin injections on the enzymatic transformation test of T lymphocytes in tissue cultures.
18	Prof. Dr. Amira Mahmoud Muhammad Dr. Rasha Hasoon	2022/2/26	Walnut oil, prevention and treatment... kills the bacteria and dissolves inflammatory kidney stones
19	Mohsen Ayoub Issa Duha Ghassan	2023/9/4	Using sulfur spring water and mud to remove antibiotic resistance in bacteria that cause skin infections

Department activities on the website

Title	English	Arabic
Description the program Academic	https://uomosul.edu.iq/en/science/description-of-academic-program-biology/	https://uomosul.edu.iq/science/%d9%88%d8%b5%d9%81-%d8%a7%d9%84%d8%a8%d8%b1%d9%86%d8%a7%d9%85%d8%ac-%d8%a7%d9%84%d8%a3%d9%83%d8%a7%d8%af%d9%8a%d9%85%d9%8a-%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85-%d8%a7%d9%84%d8%ad%d9%8a%d8%a7%d8%a9/
Description The decision Academic	https://uomosul.edu.iq/en/science/curricula-descriptions-of-biology/	https://uomosul.edu.iq/science/%d9%88%d8%b5%d9%81-%d8%a7%d9%84%d9%85%d9%82%d8%b1%d8%b1-%d8%a7%d9%84%d8%a8%d8%b2%d8%a7%d8%b3%d9%8a-%d9%84%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85-%d8%a7%d9%84%d8%ad%d9%8a%d8%a7%d8%a9/
Material And units Scholarship	https://uomosul.edu.iq/en/science/subjects-study-units-of-biology/	https://uomosul.edu.iq/science/%d8%a7%d9%84%d9%85%d9%88%d8%a7%d8%af-%d9%88%d8%a7%d9%84%d9%88%d8%ad%d8%a9-%d8%a7%d9%84%d8%af%d8%b1%d8%a7%d8%b3%d9%8a%d8%a9-%d9%84%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85-%d8%a7%d9%84/

Title	English	Arabic
Dept. Biology	https://uomosul.edu.iq/en/science/biology-department/	https://uomosul.edu.iq/science/%D9%82%D8%B3%D9%85-%D8%B9%D9%84%D9%88%D9%85-%D8%A7%D9%84%D8%AD%D9%8A%D8%A7%D8%A9/
Lectures	https://drive.google.com/drive/folders/1Fw0y8UcKNc5BLIIfmlOUVTfd.vzNojp1X	https://uomosul.edu.iq/science/%D9%85%D8%AD%D8%A7%D8%B6%D8%B1%D8%A7%D8%AA-%D9%82%D8%B3%D9%85-%D8%B9%D9%84%D9%88%D9%85-%D8%A7%D9%84%D8%AD%D9%8A%D8%A7%D8%A9/
teaching and learning process	https://uomosul.edu.iq/en/science/education-related-links-biology/	https://uomosul.edu.iq/science/%d8%b1%d9%88%d8%a7%d8%a8%d8%b7-%d8%aa%d8%b9%d9%84%d9%8a%d9%85%d9%8a%d8%a9-%d8%b9%d9%84%d9%85%d9%8a%d8%a9-%d8%a7%d9%84%d8%aa%d8%b9%d9%84%d9%8a%d9%85-%d9%84%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85/
Researches	https://uomosul.edu.iq/en/science/published-research-of-biology/	https://uomosul.edu.iq/science/%d8%a7%d9%84%d8%a8%d8%ad%d9%88%d8%ab-%d8%a7%d9%84%d9%85%d9%86%d8%b4%d9%88%d8%b1%d8%a9-%d9%81%d9%8a-%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85-%d8%a7%d8%84%d8%ad%d9%8a%d8%a7%d8%a9/
Students Projects	https://uomosul.edu.iq/en/science/projects-of-students-graduations-of-biology/	https://uomosul.edu.iq/science/%d9%85%d8%b4%d8%a7%d8%b1%d9%8a%d8%b9-%d8%aa%d8%ae%d8%b1%d8%ac-%d9%82%d8%b3%d9%85-%d8%b0%d9%84%d9%88%d9%85-%d8%a7%d9%84%d8%ad%d9%8a%d8%a7%d8%a9/
C.V.	https://cv.uomosul.edu.iq/en/list/science/biology	https://cv.uomosul.edu.iq/list/science/biology

Title	Arabic	English
Vision, mission and goals of the department	https://uomosul.edu.iq/science/%d8%a7%d9%84%d8%b1%d8%a4%d9%8a%d8%a9-%d8%a7%d9%84%d8%b1%d8%b3%d8%a7%d9%84%d8%a9-%d8%a7%d9%84%d8%a3%d9%87%d8%af%d8%a7%d9%81-%d9%82%d8%b3%d9%85-%d8%b9%d9%84%d9%88%d9%85-%d8%a7%d9%84%d8%ad%d9%8a/	https://uomosul.edu.iq/en/science/vision-mission-objectives-biology/
College guide	https://uomosul.edu.iq/science/%d8%af%d9%84%d9%8a%d9%84-%d8%a7%d9%84%d9%83%d9%84%d9%8a%d8%a9/	https://uomosul.edu.iq/en/science/college-guide/
Members of the College Council	https://uomosul.edu.iq/science/%d8%a3%d8%b9%d8%b6%d8%a7%d8%a1-%d9%85%d8%ac%d9%84%d8%b3-%d9%83%d9%84%d9%8a%d8%a9-%d8%a7%d9%84%d8%b9%d9%84%d9%88%d9%85/	https://uomosul.edu.iq/en/science/college-board/
Courses	https://uomosul.edu.iq/science/%d8%a7%d9%84%d8%af%d9%88%d8%b1%d8%a7%d8%aa/	https://uomosul.edu.iq/en/science/courses/
Patents	https://uomosul.edu.iq/science/%d8%a8%d8%b1%d8%a7%d8%a1%d8%a7%d8%aa-%d8%a7%d9%84%d8%a7%d8%ae%d8%aa%d8%b1%d8%a7%d8%b9/	https://uomosul.edu.iq/en/science/patents/

Chapter II

ABET accreditation program standards

ABET standards:

With regard to academic programs, our college has chosen the ABET program for academic accreditation, and proactive plans have been made to work within this program, under the direct supervision of the Dean of the College and his scientific and administrative assistants, by holding an introductory workshop on the ABET program.

About accreditation:

The Accreditation Board for Engineering and Technology (ABET) is an American non-governmental organization that grants accreditation to academic programs in colleges and universities around the world in the fields of applied sciences, computers, engineering, and technology. It is one of the most trusted academic accreditations in the United States of America. ABET has been providing accreditation certificates to confirm the quality of academic programs in university studies for more than 75 years.

What does ABET accreditation mean:

ABET accreditation is confirmation that the academic program obtained applies the standards of educational quality agreed upon by those with relevant experience in education to prepare and qualify students. Learning specifications are set in terms of the academic program's mission, learning objectives, learning outcomes, and study plan for engineering programs by experts in engineering education, with confirmation of the existence of mechanisms to ensure that feedback is taken from all its sources and used for continuous improvement of the academic program so that graduates of these programs continue to have the highest specifications, qualifications, and skills they need. The labor market and to ensure that the graduate remains capable of continuous self-learning that enables him to keep pace with developments in his field.

The importance of ABET accreditation:

- ABET accreditation ensures confidence that the academic program has met the basic standards to prepare graduates to enter the fields of science, technology, engineering, and mathematics, which have become a requirement for the global labor market.
- Graduates from an ABET-accredited program have a strong and capable educational foundation that enables them to follow the path of rapid technological innovations and developments.
- Accreditation helps students and their parents choose a reliable specialization, as it guarantees students that their educational experience keeps pace with international standards for learning and technical education in the vocational field.
- Accreditation gives companies and employers the opportunity to select and employ graduates, knowing that these graduates have been taught the specialty within international standards.
- Enhances job opportunities for the graduate as multinational companies require graduation from an accredited program.
- Registrars, licensors and certificates may use the accreditation to select applicants for these licenses and certificates.
- Accreditation helps universities and departments establish an organized mechanism to evaluate and develop the quality of their programs

Standards of the American Accreditation Authority:

The study aimed to evaluate the current situation of the department, and the extent to which the department achieves the standards to ensure quality, noting that the department, from the beginning, reviewed the experiences of regional and local universities and reached the following fact: The department needs support for a quality management system to ensure continuity of development and improvement of performance, and this in turn requires development and modernization in The management method and its work mechanisms are consistent with international standards for the quality of higher education and achieve compliance with the standards set by the Ministry of Higher Education and Scientific Research/the Scientific Supervision and Evaluation Agency/the Department of Quality Assurance and Academic Accreditation by adopting the program standards.

Academic accreditation standards for: ABET

This report has been organized into several main axes:

- The first axis: Students, which includes student matters and everything related to students, including education, training, activities, admission and graduation mechanisms, and others.

-The second axis: Objectives of the academic program, educational objectives of the programs, and addresses the department's strategy, objectives, and ways to improve the educational process.

-The third axis: program outcomes

-Fourth axis: continuous improvement of quality.

-The fifth axis: curricula and everything related to study hours, updating, and transfer during the four years.

-The sixth axis: The teaching staff, which includes matters related to the teaching staff in the department and ways to improve them in order to develop the educational process in the department.

-Seventh axis: capabilities and infrastructure of the department.

- The eighth axis: institutional support.

1st Axis: students

Student registration and admission mechanism:

The capacity of the Biology Department is determined within the admission plan sent to the deanship, then to the university, and then to the ministry to obtain official approvals.

Application to the college is made through the Registration Division of the Deanship of the College of Science, taking the required official documents, and distributing the students to the college's departments according to the capacity and the student's desire in terms of allowing him to move from the highest department to the lowest department in the hierarchy of departments in the College of Science.

Methods used in evaluating students and graduation requirements:

Graduation requirements for students in the initial stage of study include the following

-Success in all academic subjects, theoretical and practical, with a passing grade of 50 out of 100.

-Summer training: The student must pass the summer training period in one of the hospitals or health centers that can develop his skills, so that he can have a direct experience with practical life. Summer training is a basic requirement for the transition of third to fourth stage students.

- Graduation project: It is one of the requirements for granting a bachelor's degree. The student must complete the graduation project in its fourth stage.

Guidance and advice for students:

Advice and guidance are provided to students by guidance committees. Teachers follow up on students through guidance committees in the department, and an educational guidance program has been developed in the Biology Department for the four stages, to identify students' problems and contribute to solving them.

Alumni Description:

The student who graduated from the Department of Biology can be described as follows:

1. He is a person who has completed his academic studies in biological sciences and obtained a bachelor's degree / science / Biology. Who possesses detailed and accurate specialized information in his science such that this information enables him to work in one of the jobs or centers that qualifies him to work in this aspect of applied sciences.

2. He is the one who has acquired extensive experience and scientific and technical information from his studies that have applications in the fields of medicine, public health, agriculture, food industries, and general biological knowledge, such that this information enables him to work and practice a profession related to his specialty with complete success.

The alumni's field of work	Description Certificate	Department	College	University
Departments or institutions of the Ministry of Higher Education, Scientific Research, Health, Environment, Industry and Agriculture	Bachelor's Biology	Biology	Sciences	Mosul

Numbers of under graduate students:

Table (1): Numbers of under graduate students 2020-2021:

Stage	Male	Females	The Number	Average age
One	44	120	164	24 - 18
Two	30	77	107	31 - 19
Three/Biology	12	31	43	28 - 21
Three/Microbiology	23	38	61	30 - 20
Four/Biology	46	53	99	27 - 21
Four/ Microbiology	40	56	96	28 - 21

Table (2): Numbers of under graduate students 2021-2022:

Stage	Male	Females	Total	Average of age
One	6	61	67	24 - 18
Two	45	142	187	31 - 19
Three/Biology	13	36	49	28 - 21
Three/Microbiology	10	51	61	30 - 20
Four/Biology	14	29	43	27 - 21
Four/ Microbiology	12	49	61	28 - 21

Table (3): Numbers of under graduate students 2022-2023:

Stage	Male	Females	Total	Average of age
One	22	101	123	24 - 18
Two	13	60	73	31 - 19
Three/Biology	17	62	79	28 - 21
Three/Microbiology	16	70	86	30 - 20
Four/Biology	13	36	49	27 - 21
Four/ Microbiology	10	51	61	28 - 21

Table (4): Numbers of under graduate students 2023-2024:

Stage	Male	Females	Total	Average of age
One	22	101	123	24 - 18
Two	13	60	73	31 - 19
Three/Biology	17	62	79	28 - 21
Three/Microbiology	16	70	86	30 - 20
Four/Biology	13	36	49	27 - 21
Four/ Microbiology	10	51	61	28 - 21

2nd Axis: Objectives of the academic program

Educational objectives of the program:

1. Graduating students familiar with scientific and practical information in the three branches of Biology - microbiology, zoology, and botany, and developing the student's personality to develop it into a scientific personality capable of understanding and diagnosing scientific problems in society and dealing with them with wisdom and science starting from his scientific stock, and guiding the student educationally during The academic stage and developing the spirit of cooperation for teamwork.

2. Developing the teaching staff, as teachers are sent to study outside the country through scholarships, fellowships, and development courses in reputable international universities, and openness to international educational institutions such as universities and international research centers, and try to benefit from the capabilities and expertise of these institutions. In addition to opening channels of communication with Iraqi colleges and universities and participating in conferences, scientific seminars, and continuing education courses within the country.

3. Curriculum development.

Components of the academic program:

The components of the program are those who must be satisfied with the performance according to the Biology program, and they are:

1. Faculty: Faculty participate on a regular basis in the evaluation of the academic program. Faculty members are a homogeneous group who work as a team to improve education in the department. Most of the faculty members participate in research.

2. Students: Students are interested in whether the program adequately prepares them for future employment. Students in the program are motivated to become successful researchers who are well-versed in their field to suit their expected future work.

3. Graduates: This group consists of recent graduates and graduates who have been working for 3 to 5 years. Graduates with 3 to 5 years of work experience form an essential part of the evaluation process. They must have incentives to evaluate the quality of the academic program based on their professional achievements.

4. Employers: (Government, industry, universities): Employers' satisfaction with the educational level of our students provides a measure of the program's success. Their satisfaction translates into job opportunities for our students.

The process of setting educational program objectives:

The mission of the university, college, and department is to instill in its graduates a solid scientific foundation for the specialty in question, scientific knowledge, and the development of intellectual skills necessary for excellence in their professional lives.

Emphasis is placed on encouraging faculty members to publish their scientific research in international and Iraqi journals.

Achieving the program's educational objectives:

The assessment of the objectives of the Biology academic program is checked continuously and periodically through many channels such as employers, student debriefing process, faculty opinions, etc.

3rd Axis: program outcomes

Program outcomes:

The program results are listed below, as the graduating student has successfully acquired all the skills, knowledge, and behaviors found in the results listed below for the purpose of achieving the program objectives. On this basis or descriptive concept, the Biology graduate must have the following knowledge:

-To possess extensive, detailed, and accurate information about the medical, health, agricultural, food industries, and the environmental and natural systems.

-To possess extensive knowledge of biological, genetic, and biological concepts and laws in general.

- To be able to analyze, differentiate and accurately diagnose in the biological and laboratory fields.

4th Axis: continuous improvement

Review program outcomes and student goals:

The Department of Biology at the University of Mosul offers a program leading to a Bachelor of Science degree in Biology.

The program outcomes are reviewed annually with faculty members and relevant committees in the department. To support the program, the department plans to visit various offices and institutions as well as private sector companies to find out their opinions about the department's graduates and their suggestions for improving the program.

Student opinion statement and continuous improvement process:

A questionnaire form is distributed to the department's students at all levels of study at the end of the academic year for the purpose of determining the accuracy of the department's teaching performance. It consists of 36 items as follows:

Paragraphs	Acceptable	Middle	Good	Very Good	Excellence
It takes into account individual differences and psychological characteristics of students.					
Discusses students' answers and inquiries flexibly and accepts other points of view.					
Develops good attitudes, habits and morals in students.					
He uses a variety of educational methods to motivate students.					
It provides cooperative or competitive activities in which students interact with each other.					
His ability to manage time for lectures and adhere to appointments.					
Motivate students to review the references of various scientific subjects.					
Students feel concerned for them and want to benefit them.					
Diversify the questions and take into account the correct timing when asking them during the lecture.					

It addresses students' weaknesses in the academic subject and enhances their strengths.					
He adheres to the specified time for the lecture, attends and leaves, and uses his time well.					
He speaks in a clear voice and understandable language.					
His commitment to scientific aspects during the lecture and not addressing external matters that are not related to the topic of the lecture.					
Diversifying interesting teaching methods and using more than one teaching method during the lecture.					
It provides students with the vocabulary included in the curriculum and its basic sources.					
Distributes the subject matter according to an appropriate timetable known to the students.					
Gradual presentation of scientific material from simple to complex.					
He is good at answering students' questions.					
He focuses on educational guidance whenever the opportunity allows.					
It depends on dialogue and discussion.					
He asks evaluative questions during the lecture and at its conclusion that illuminate the students' creative thinking and measure their understanding of the material.					
It uses oral and written methods and tests.					
Explains how grades are distributed on activities and tests at the beginning of the semester.					
The results of periodic examinations and written work are announced in a timely manner.					
It attracts students' attention throughout the lecture in multiple ways.					
Encourages everyone to actively participate in the lecture.					
Encourages students to use resources and benefit from the library and the Internet.					
Directs the student on ways to avoid academic plagiarism.					

It enables the student to use methods of writing and publishing scientific research in reputable journals.					
He has good relationships with his students.					
Directs the student to use resource arrangement programs in research.					
He welcomes questions from his students outside lecture hours.					
It encourages cooperative work such as (ceremonies, competitions, matches, exhibitions, etc.).					
He conducts live broadcast lectures.					
He publishes video lectures in electronic classes.					
He publishes lectures in the form of PowerPoint slides in electronic classes.					
the total					
percentage					

The following figures (1,2,) represents the statistical analysis of a sample of the results of a student opinion questionnaire about one of the teachers for the year 2020-2021 and 2021-2022 respectively.

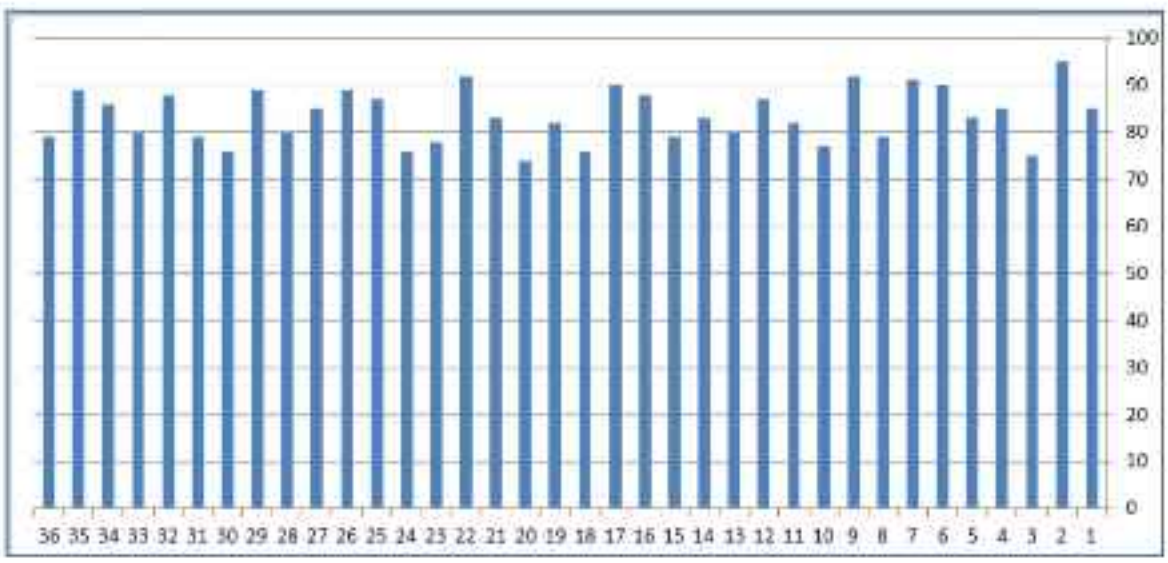


Figure (1) Statistical analysis of a sample of the results of a student opinion questionnaire about a teacher for the year 2020-2021

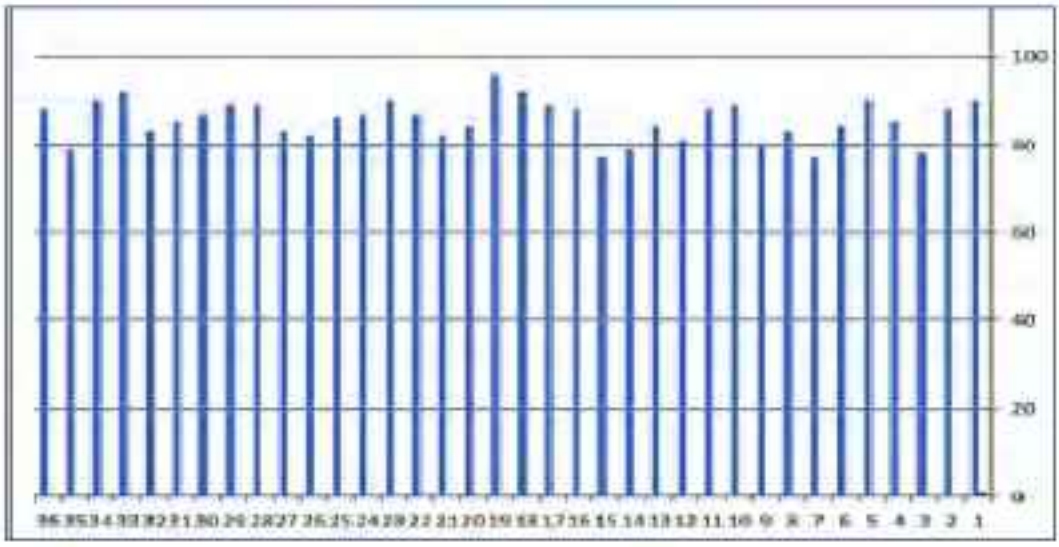


Figure (2) Statistical analysis of a sample of the results of a student opinion questionnaire about a teacher for the year 2021-2022

In the years that followed, the electronic ministerial form below was circulated:

	Paragraph	Excellence	Very Good	Good	Middle	Acceptable
1	He prepares the lesson and takes into account the sequence in presenting the material in a logical and interesting way					
2	Diversify the different teaching methods and methods within the lecture					
3	Improves methods of dealing with students and takes into account individual differences					
4	Encourages and develops self-learning among students					
5	He invests time within the lecturer to enrich the scientific material					
6	uses various traditional and electronic methods in testing and evaluation					
7	provides various cooperative or competitive activities to stimulate students' motivation					
8	He monitors the level of students on an ongoing basis for the purpose of enhancing their strengths And address their weaknesses					
9	Discusses students' answers and responds to their inquiries flexibly to create a safe learning environment					
10	Develops good attitudes, habits and morals among students					

The following figures (3,4) represents the statistical analysis of a sample of the results of a student opinion questionnaire about one of the teachers for the year 2022-2023 and 2023-2024 respectively.

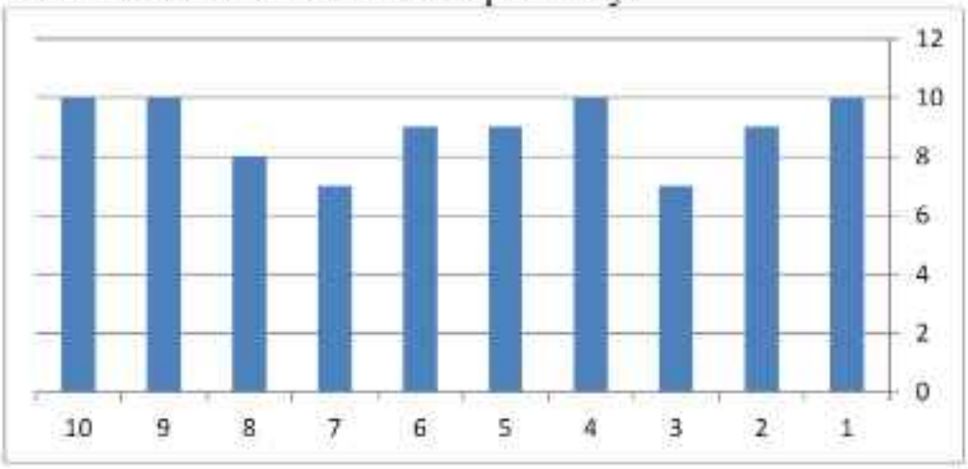


Figure (3) Statistical analysis of a sample of the results of a student opinion questionnaire about a teacher for the year 2022-2023

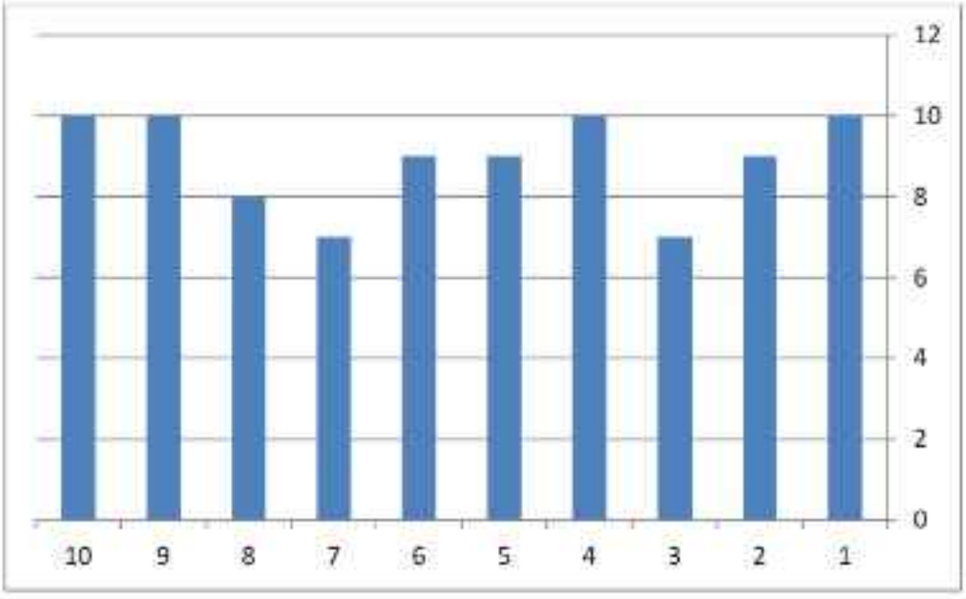


Figure (4) Statistical analysis of a sample of the results of a student opinion questionnaire about a teacher for the year 2023-2024

At the end of the academic year, statistics are also evaluated, which will be considered an indicator of the level of students' progress or not during the educational program and evidence of the level of teaching performance, his ability to deliver the scientific material to the student, and the accuracy of his dealings with students. The statistical results also indicate to us the deficiencies in the academic subjects that the student suffers from.

5th Axis: Syllabus

Programs of Studies in the Department:

Syllabus:

University name: University of Mosul

College/Institute: College of Science

Scientific Department: Life Sciences Department

Name of the academic or professional program: Bachelor's degree

Name of final degree: Bachelor's degree (Life Sciences and Microbiology(

Academic system: semester

Description preparation date: 2024

Date of filling the file: 2024

1. Program vision

Making strenuous efforts to apply the latest scientific curricula that combine the basics and continuous development to serve the community and excel in disseminating knowledge in the fields of Biology (botany, zoology, and microbiology) to obtain high levels of performance for faculty members and students.

2. Program letter

The department's mission includes updating and disseminating information in the field of various biology (botany, zoology, and microbiology) and making efforts to hone students' talents and develop their capabilities to help develop and advance society and build graduates with professional expertise that will make them enjoy good opportunities locally and globally.

3. Program goals

The Biology Department aims to:

A. A comprehensive study of biological sciences and their applications and uses in society from a theoretical, scientific and applied perspective.

B. Preparing scientific cadres at the primary and higher levels to work in the medical, health, agricultural, food, oil, pharmaceutical, and biological fields.

C. Students acquire scientific techniques in using devices and equipment that can be used in their theoretical and applied studies.

D. Students acquire academic and applied information about biological sciences and their various trends and specializations.

E. Providing state institutions and the mixed and private sectors (medical, industrial and laboratory institutions) with primary and senior specialized cadres to work in this field.

F. Research and study everything that is new in biological sciences, keep up with scientific developments in this field, and include them within the prescribed school curricula.

4. Programmatic accreditation

Accredited so far by ABET

Waiting for the ministerial accreditation standards that will be launched soon

5. Other external influences

Pending ministerial accreditation standards

6. Program structure				
Program structure	**No. of courses**	**Credits**	**Percentage**	**Notes**
Institute requirements	5	11	4.6	
College requirements	1	2	0.8	
Department requirements	42	227	94.6	
Summer training				The student is requested a summer training at the end of the sixth semester
Others				

* Notes may include whether the course is core or elective

7. Program description

Republic of Iraq - Ministry of Higher Education and Scientific Research	جمهورية العراق - وزارة التعليم العالي والبحث العلمي
University of Mosul	جامعة الموصل
Bachelor's degree in Biology (First cycle)	بكالوريوس علوم في علوم الحياة (الدورة الأولى)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr	أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
Program Curriculum (2023 - 2024)	المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Level	Semester	No.1	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	Bio-1101	General Zoology	علم الحيوان العام	English	2	2	3				3	108	92	200	8.00	C	
		2	Bio-1102	Analytical Chemistry	كيمياء تحليلية	English	2	2	3				3	108	92	200	8.00	C	
		3	SO-101	General Mathematics	الرياضيات العامة	English	2						3	33	17	50	2.00	B	
		4	Bio-1103	Biophysics	فيزياء حياتية	English	2	2	3				3	108	92	200	8.00	C	
		5	UOM-108	Human Rights and Democracy	حقوق الانسان وديمقراطية	Arabic	2						3	33	17	50	2.00	B	
		6	UOM-101	Arabic Language	اللغة العربية	Arabic	2						3	33	17	50	2.00	B	
						Total	12	8	9	0	0	0	18	423	327	750	30.00		

Level	Semester	No.2	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Two	1	Bio-1204	General Botany	علم النبات العام	English	2	2	3				3	108	92	200	8.00	C	
		2	Bio-1205	Organic Chemistry	كيمياء عضوية	English	2	2	3				3	108	92	200	8.00	C	
		3	Bio-1206	Biostatistics	احصاء حياتي	English	2	2					3	83	47	130	5.00	C	
		4	Bio-1207	Safety and Biosecurity	السلامة والامن البايلوجي	Arabic	2	2					3	83	52	135	4.00	C	

		5	UOM-103	Computer Science	علم الحاسوب	English	2		2				3	63	12	75	3.00	B	
		6	UOM-102	English Language	اللغة الإنكليزية	English	2	1					3	40	17	60	2.00	B	
						Total	12	8	8	0	0	0	18	463	282	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Three	1	Bio-2308	Entomology I	علم الحشرات I	English	2	1	3				3	79	71	150	5.00	C	
		2	Bio-2309	Plant Anatomy	علم تشريح النبات	Arabic	2	1	3				3	79	71	150	5.00	C	
		3	Bio-23010	Invertebrates	علم اللافقريات	English	2	1	3				3	79	71	150	5.00	C	
		4	Bio-23011	Biochemistry I	كيمياء حياتية I	English	2		3				3	79	47	125	5.00	C	
		5	Bio-23012	Microbiology I	علم الأحياء الدقيقية I	English	2		3				3	79	47	125	5.00	C	
		6	UOM-105	Crimes of the Baath party	جرائم حزب البعث	Arabic	2						3	33	17	50	2.00	B	
						Total	12	5	15	0	0	0	18	429	321	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGII	Four	1	Bio-24113	Entomology II	علم الحشرات II	English	2	1	3				3	79	71	150	5.00	C	Bio-2308
		2	Bio-24114	Plant Taxonomy	علم تصنيف النبات	Arabic	2	1	3				3	79	71	150	5.00	C	Bio-2309
		3	Bio-24115	Parasitology	علم الطفيليات	English	2	1	3				3	79	71	150	5.00	C	Bio-23010
		4	Bio-24116	Biochemistry II	كيمياء حياتية II	English	2		3				3	79	22	100	4.00	C	Bio-23011
		5	Bio-24117	Microbiology II	علم الأحياء الدقيقية II	English	2	1	2				3	63	37	100	4.00	C	Bio-23012
		6	Bio-24018	Plant Groups	مجاميع نباتية	English	2	1	2				3	63	37	100	4.00	C	
						Total	12	5	15	0	0	0	18	432	318	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGIII	FiveBIOLOGY	1	Bio1-35019	Cell Biology	علم خلية الخلية	English	2	1	3				3	79	71	150	5.00	C	

	2	Bio1-35020	Ecology	علم البيئة	English	2		3				3	75	47	125	5.00	C	
	3	Bio1-35021	Biotechnology	تقنيات حيوية	English	2		3				3	75	47	125	5.00	C	
	4	Bio1-35022	Mycology I	علم الفطريات	English	2	1	3				3	79	71	150	6.00	C	
	5	Bio1-35023	Laboratory analysis	تحليلات مرضية	English	2	1	3				3	79	71	150	6.00	C	
	6	Bio1-35024	Research Methodology	أساسيات البحث العلمي	Arabic	2						3	33	17	50	2.00	C	
					Total	12	3	15	0	0	0	18	420	324	750	30.00		

Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
Sta/BIOLOGY	1	Bio1-36025	Plant Pathology	امراض نبات	English	2		3				3	78	72	150	6.00	C	
	2	Bio1-36026	Histology	انسجة	English	2		3				3	78	72	150	6.00	C	
	3	Bio1-36027	Diagnostic parasite	تشخيص طفيليات	English	2		3				3	78	72	150	6.00	C	
	4	Bio1-36128	Pollution	تلوث	English	2	1	2				3	64	36	100	4.00	C	Bio1-35020
	5	Bio1-36129	Genetics	وراثة	English	2		3				3	78	47	125	5.00	C	Bio1-35019
	6	Bio1-36030	Allelopathy	تضاد حيوي	English	2		2				3	53	12	75	3.00	C	
					Total	12	1	16	4	0	4	18	429	311	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGIV	five/Microbiology	1	Bio2-35019	Soil Microbiology	ميكروبيولوجيا تربة	English	3		3				3	78	47	125	5.00	C	
		2	Bio2-35020	Laboratory Analysis	تحليلات مرضية	English	2	1	3				3	79	71	150	6.00	C	
		3	Bio2-35021	Histology	علم الأنسجة	English	2	1	3				3	79	71	150	6.00	C	
		4	Bio2-35022	Ecology	علم البيئة	English	2		3				3	78	47	125	5.00	C	
		5	Bio2-35023	Cell Biology	علم خلية الخلية	English	2	1	3				3	79	71	150	6.00	C	
		6	Bio2-35024	Research Methodology	أساسيات البحث العلمي	Arabic	2						3	33	17	50	2.00	C	
					Total	12	3	15	0	0	0	18	425	324	750	30.0		

	Semester	No	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Six/Microbiology	1	Bio2-36025	Water Microbiology	علم ميكروبية الماء	English	2		3				3	78	72	150	6.00	C	
		2	Bio2-36026	Bacterial Physiology	علم فسيولوجية البكتريا	English	2		3				3	78	72	150	6.00	C	
		3	Bio2-36027	Animal Physiology	علم فسيولوجية الحيوان	English	2		3				3	78	72	150	6.00	C	
		4	Bio2-36128	Pollution	تلوث	English	2	1	2				3	64	36	100	4.00	C	Bio2-35022
		5	Bio2-36129	Genetics	وراثة	English	2		2				3	60	12	75	3.00	C	Bio2-35023
		6	Bio2-36030	Antibiotics	مضادات حيوية	English	2		3				3	78	47	125	5.00	C	
						Total	12	1	18	0	0	0	18	439	311	750	30.0		

Level	Semester	No	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI V	Seven/BIOLOGY	1	Bio1-47031	Animal Physiology 1	علم فسيولوجية الحيوان 1	English	2	1	3				3	79	71	150	6.00	C	
		2	Bio1-47032	Plant Physiology 1	علم فسيولوجية النبات 1	English	2	1	3				3	79	71	150	6.00	C	
		3	Bio1-47033	Embryology	علم الاجنة	English	2	1	3				3	79	71	150	6.00	C	
		4	Bio1-47034	Quantitative Genetics	وراثة كمية	English	2	1	3				3	79	71	150	6.00	C	
		5	Bio1-47035	Molecular biology	علم البيولوجي الجزيئي	English	2	1	3				3	78	22	100	4.00	C	
		6	Bio1-47036	Research Project	بحث تخرج1	English	2						3	33	17	50	2.00	C	
						Total	12	5	15	0	0	0	18	427	323	750	30.0		

	Semester	No	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Eight/BIOLOGY	1	Bio1-48137	Animal Physiology 2	علم فسيولوجية الحيوان 2	English	2	1	3				3	79	71	150	6.00	C	Bio1-47031
		2	Bio1-48138	Plant Physiology 2	علم فسيولوجية النبات 2	English	2	1	3				3	79	71	150	6.00	C	Bio1-47032
		3	Bio1-48039	Comparative Anatomy	تشريح مقارن	English	2	1	3				3	79	71	150	6.00	C	

	4	Bio1-48040	Biodiversity	تنوع احيائي	English	2	1	3				3	75	71	150	6.00	C	
	5	Bio1-48041	Immunology	علم المناعة	English	2	1	3				3	78	22	100	4.00	C	
	6	Bio1-48142	Research Project	بحث تخرج2	English	2						3	33	17	50	2.00	C	Bio1-47036
					Total	12		15	0	0	0	18	427	323	750	30.0		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGL V	Seven/MICROBIOLOGY	1	Bio2-47031	Immunology	علم المناعة	English	2	1	3				3	78	71	150	6.00	C	
		2	Bio2-47032	pathogenic Bacteriology	علم البكتريا المرضية	English	2	1	3				3	78	71	150	6.00	C	
		3	Bio2-47033	Food Microbiology	علم الاحياء المجهرية الغذائية	English	2	1	3				3	78	71	150	6.00	C	
		4	Bio2-47034	Mycology	علم الفطريات	English	2	1	3				3	78	71	150	6.00	C	
		5	Bio2-47035	Enzymology	علم الانزيمات	English	2	1	3				3	78	22	100	4.00	C	
		6	Bio2-47036	Research Project	بحث تخرج1	English	2						3	33	17	50	2.00	C	
						Total	12	5	15	0	0	0	18	427	323	750	30.0		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة بالعربية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
	Eight/MICROBIOLOGY	1	Bio2-48037	Microbial Genetics	وراثة احياء مجهرية	English	2	1	3				3	78	71	150	6.00	C	
		2	Bio2-48038	Virology	علم الفايروسات	English	2	1	3				3	78	71	150	6.00	C	
		3	Bio2-48139	Industrial Microbiology	علم الاحياء المجهرية الصناعية	English	2	1	3				3	78	71	150	6.00	C	Bio2-47033
		4	Bio2-48140	Fungal Taxonomy	علم تصنيف الفطريات	English	2	1	3				3	78	71	150	6.00	C	Bio2-47034
		5	Bio2-48041	Molecular biology	علم الاحياء الجزيئي	English	2	1	3				3	78	22	100	4.00	C	
		6	Bio2-48142	Research Project	بحث تخرج2	English	2						3	33	17	50	2.00	C	Bio2-47036
						Total	12	5	15	0	0	0	18	427	323	750	30.0		
						Total	96	37	102	0	0	0	144	3450	2466	6000	240.0		Must be 240 ECTS

Note: The student should complete 4 weeks of Summer Internships to fulfil the requirements of the Bachelor's degree							
Structured SWL (hr/w) type	CL	Class Lecture	Module type	B	Basic learning activities	SWL:	Student Workload
	Lab	Laboratory		C	Core learning activity	SSWL:	Structured SWL
	Pr	Practical Training				USSWL:	Unstructured SWL
	Tut	Tutorial					
	Lect	Online lecture					
	Semn	Seminar	Note: Columns O, Q and R are progrmaed, protected and should not be edited				

8.Expected learning outcomes of the program
Knowledge
Students who hold a bachelor's degree in biology are expected to have acquired the following skills: 1. Acquiring basic concepts in biological sciences and distinguishing types of plants, animals, bacteria, viruses and fungi 2. Using laboratory and analytical techniques. Using applied skills and laboratory and field techniques to analyze and interpret data, evaluate wealth, and find solutions to biological and environmental problems, while taking into account general safety conditions in the laboratory and field.
Skills
1 – Enable the student to teach biology 2 - Enables the student to work in laboratories and health institutions 3 - Enables the student to work in research institutions
thinking skills Short pop quizzes Semester exams General and transferable skills (other skills related to employability and personal development) The ability to work in a multidisciplinary team The ability to communicate constructively
Values
Understand the ethical and professional responsibilities and recognize the economic, environmental, societal and global consequences of technical and scientific solutions for biological and environmental problems The ability to communicate effectively and work as a team.

9. Teaching and learning strategies
Theoretical, practical, and applied lectures, daily assignments, and discussions

10. Evaluation methods
Exams, assignments, daily assignments, discussions, laboratory reports and a graduation project

11. Faculty staff

Faculty staff members

Academic position	Specialty					Special requirements/skills (if any)	Number of faculty members	
	General	Specific						
		Botany	Zoology	Microbiology	Computer		Permanent	temporary
Prof.	15	3	7	5			15	
Asst. Prof.	35	11	12	12			35	
Lecturer	39	12	8	18			39	
Asst. lecturer	31	10	10	11	1		31	

Professional development
Orienting new faculty members
Working to improve the academic and research capabilities and skills of faculty members through: 1. Guiding them to participate in teaching methods courses. 2. Holding training workshops, scientific meetings, and dialogue sessions. 3. Educating them on modern teaching methods. 4. Spreading a culture of continuous development and improvement to reach the best level of academic and professional performance. 5. Providing individual and group guidance programs for faculty members to overcome the difficulties that plague their professional lives
Professional development for faculty members
1. Developing faculty members' skills in academic, research and creative fields. 2. Supporting university faculty members in their educational, research and creative tasks. 3. Providing and developing diverse resources that contribute to achieving the above two goals. 4. Providing the appropriate professional environment for the creativity of the faculty member. 5. Supporting the faculty member's tasks in the field of community service. Creating and developing information bases and resources related to faculty members.

12. Acceptance criterion
Central Admission

13. The most important sources of information about the program
Program development through • Higher directives • What new sciences are developed in the field of specialization

14. Program development plan
- Teamwork: Working within the group effectively and actively. - Time management: Managing time effectively and setting priorities with the ability to work organized by appointments. - Preparing scientific research and reports to analyze and criticize events.

Program Skills Outline													
				Required program Learning outcomes									
Year/Level	Course Code	Course Name	Basic learning activities Core learning activity	Knowledge				Skills				Ethics			
				A1	A 2	A 3	A 4	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C 4
Semester 1	Bio-1101	General Zoology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-1102	Analytical Chemistry	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Sci-1103	General Mathematics	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-1103	Biophysics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UOM-104	Human Rights and Democracy	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UOM-101	Arabic Language	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Semester 2	Bio-1204	General Botany	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-1205	Organic Chemistry	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-1206	Biostatistics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-1207	Safety and biosecurity	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UOM-103	Computer Science	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UOM-102	English Language	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Semester 3	Bio 2308	Entomology I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 2309	Plant Anatomy	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 23010	Invertebrates	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 23011	Biochemistry I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 23012	Microbiology I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UOM 105	Crimes of the Baath party	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Semester 4	Bio 24113	Entomology II	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 24114	Plant Taxonomy	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-24115	Parasitology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-24116	Biochemistry II	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-24117	Microbiology II	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-24018	Plant Groups	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Five/BIO	Bio-35019	Cell Biology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

LOGY	Bio-35020	Ecology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-35021	Biotechnology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-35022	Mycology I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-35023	Laboratory analysis	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-35024	Research Methodology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Six/BIOLOGY	Bio-36025	Plant Pathology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-36026	Histology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-36027	Diagnostic parasite	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 36128	Pollution	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 36129	Genetics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-36030	Allelopathy	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
five/Microbiology	Bio-35019	Soil Microbiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 35020	Laboratory Analysis	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-35021	Histology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 35022	Ecology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 35023	Cell Biology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 35024	Research Methodology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Six/Microbiology	Bio 36025	Water Microbiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 36026	Bacterial Physiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 36027	Animal Physiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio 36128	Pollution	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-36129	Genetics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-36030	Antibiotics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Seven/BIOLOGY	Bio-47031	Animal Physiology I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47032	Plant Physiology I	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47033	Embryology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47034	Quantitative Genetics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

	Bio-47035	Molecular biology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47036	**Research Project**	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eight/BIOLOGY	Bio-48137	Animal Physiology 2	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48138	Plant Physiology 2	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48039	Comparative Anatomy	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48040	Biodiversity	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48041	Immunology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48142	Research Project	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Seven/MICROBIOLOGY	Bio-47031	Immunology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47032	pathogenic Bacteriology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47033	Food Microbiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47034	Mycology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47035	Enzymology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-47036	Research Project	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eight/MICROBIOLOGY	Bio-48037	Microbial Genetics	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48038	Virology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48139	Industrial Microbiology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48140	Fungal Taxonomy	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48041	Molecular biology	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bio-48142	Research Project	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Compatibility of the curriculum with the program's educational objectives:

The College has full authority to determine, review, implement and achieve the educational objectives of the program. The primary role of the College is to establish, review and evaluate program topics as well as set and review the educational objectives of the program and ensure the achievement of student outcomes. Therefore, the above process ensures that the curriculum is aligned with the educational objectives of the program as shown in the various tables. The Department of Biology ensures that students receive all scientific analyzes within the context of the science program.

6th Axis: Teaching staff

Administrative regulation

The Biology Department Chair is responsible for all aspects of department management. The department has an administrative system with a clear structure in terms of responsibilities, and the administrative work in the department is distributed within an organizational structure. Note that the Biology Department's program is determined by the Department Council, which in turn sets the foundations and basics for execution the program since the beginning of the academic year, while providing the opportunity for faculty members to contribute to making this policy through their participation in the various department committees, which in turn submit recommendations to the department's management for the purpose of Take it into account when making decisions.

a. Description of faculty members in the Biology Department

The department of biology is distinguished by teaching staff from all precise specializations in biology specialization and from international and local universities, the department includes 106 teaching staff, distributed according to their certificates and scientific titles in following table.

Academic Degree							Source of Diploma		Total No.
Assistant lecturer	Lecturer		Assistant professors		Professors		Outside country	Inside country	
31	41		33		14		6	114	120
	MSc	PhD	MSc	PhD	MSc	PhD			
	18	21	5	30	-	15			

A. Names of Faculty members of the Biology Department

NO.	Name	Academic degree
1.	Dr. Amjad Abdul-Hadi Mohammed	**Professor**
2.	Dr. Rayan Mazin Faisal	**Asst. Prof.**
3.	Dr. Alaa Hussein Ali	**Asst. prof.**
4.	Dr. Amira Mahmoud Muhammad	Professor
5.	Dr. Muhammad Salahuddin	Professor
6.	Dr. Munif Abdel Mustafa	Professor
7.	Dr. Janan Abdul Khaleq Saeed	Professor
8.	Dr. Israa Ghanem Hazem Al-Sammak	Professor
9.	Dr. Mona Hussein Ali	Professor
10.	Dr. Mohsen Ayoub Issa	Professor
11.	Dr. Mahmoud Ismail Muhammad	Professor
12.	Dr. Hiyam Adel Ibrahim Al-Taie	Professor
13.	Dr. Mahmoud Abdel-Jabbar Hussein	Professor
14.	Dr. Owayes Muwaffaq Hamed	Professor
15.	Dr. Raed Salim Alsaffar	Professor
16.	Dr. Muntaha Mahmoud Daoud Al-Qattan	Professor
17.	Dr. Bushra Hassan Saeed	Professor
18.	Dr. Hoda Younis Qassem	Asst. prof.
19.	Dr.. Muhammad Hussein Mikael	Asst. prof.
20.	Dr. Faten Nouri Abdel	Asst. prof.
21.	Dr. Waad Sabri Shaher	Asst. prof.
22.	Dr. Najah Subhi Nayef	Asst. prof.
23.	Dr. Maha Akram Muhammad	Asst. prof.
24.	Dr. Warqa Saeed Qasim	Asst. prof.
25.	Dr. Sinaï Abdullah Ali	Asst. prof.
26.	Dr. Firas Hamid Khudair	Asst. prof.
27.	Dr. Fatima Qasim Muhammad	Asst. prof.
28.	Dr. Ghada Abdel Razzaq Muhammad	Asst. prof.
29.	Dr. Nihal Ezzat Gomaa	Asst. prof.
30.	Dr. Hadeel Ahmed Khalaf	Asst. prof.
31.	Dr. Shaker Ghazi Girgis	Asst. prof.
32.	Dr. Anfal Muayad Jalaluddin	Asst. prof.
33.	Dr. Anmar Ahmed Daoud	Asst. prof.
34.	Dr. Elham Abdullah Ali	Asst. prof.
35.	Dr. Wasn Saleh Hussein Ali	Asst. prof.
36.	Dr. Abdel Moneim Muhammad Ali	Asst. prof.
37.	Dr. Rojan Ghanem Mohammed	Asst. prof.
38.	Dr. Badia Abdel Razzaq Jamal	Asst. prof.
39.	Dr. Haitham Luqman Al-Hayali	Asst. prof.
40.	Dr. Aws Ibrahim Suleiman	Asst. prof.

41.	Dr. Khansa Muhammad Yunus	Asst. prof.
42.	Dr. Abeer Atallah Ayed	Asst. prof.
43.	Dr. Thaer Muhammad Hassan	Asst. prof.
44.	Dr. Alaa Hussein Taha	Asst. prof.
45.	Dr. Angham Jabbar Alwan	Asst. prof.
46.	Dr. Nihal Younis Mohamed Ahmed	Lecturer
47.	Dr. Mai Taha Hamed	Lecturer
48.	Dr. Azhar Hussein Ali Suleiman	Lecturer
49.	Dr. Zakaria Sami Abdel Razzaq	Lecturer
50.	Dr. Abeer Ali Kazem	Lecturer
51.	Dr. Sahar Salem Poutros	Lecturer
52.	Dr. Ali Abdul Ali	Lecturer
53.	Dr. Jehan Muwaffaq Saeed Hassan	Lecturer
54.	Dr. Rasha Aziz Muhammad	Lecturer
55.	Dr. Iman Mahmoud Khadr	Lecturer
56.	Dr. Heba Khaled Mahmoud	Lecturer
57.	Dr. Sahar Luqman Hamed	Lecturer
58.	Dr. Hala Mazhar Yaqoub Al-Takriti	Lecturer
59.	Dr. Muowafaq Khalil Hassan	Lecturer
60.	Dr. Mahmoud Sobhi Mahmoud	Lecturer
61.	Dr. Enas Abdel Moneim	Lecturer
62.	Dr. Zahraa Khairuddin Mohieddin	Lecturer
63.	Dr. Sahira Idris Hamid	Lecturer
64.	Dr. Heba Hadi Taha Ahmed Al-Dabbagh	Lecturer
65.	Dr. Shafak Tariq Burhan	Lecturer
66.	Dr. Naglaa Tariq Hassan	Lecturer
67.	Mona Muhammad Essam	Asst. prof.
68.	Iman Reda Jassim	Asst. prof.
69.	Naglaa Abdullah Fathi Al Nuaimi	Asst. prof.
70.	Hanan Sami Nouri	Asst. prof.
71.	Alfat Tahseen Yassin	Asst. prof.
72.	Falak Abdul Hafez Khattab	Lecturer
73.	Raja Abdul Rahman Hassan	Lecturer
74.	Nagwa Mahfouz Ahmed	Lecturer
75.	Israa Munib Muhammad Ali	Lecturer
76.	Iman Samir Muhammad	Lecturer
77.	Abeer Ahmed Mahmoud	Lecturer
78.	Ahmed Talal Hikmat	Lecturer
79.	Huda Waleed Hadi	Lecturer
80.	Muhammad Abdel Razzaq Ibrahim	Lecturer
81.	Mohamed Abdel Ghani Mohamed	Lecturer
82.	Muhammad Mahdi Saleh	Lecturer
83.	Rana Waad Allah Yunus	Lecturer
84.	Iman Muhammad Taher	Lecturer
85.	Sura Mahmoud Younis	Lecturer
86.	Amina Ghanem Omar Ali	Lecturer
87.	Aisha wameedh	Lecturer

88.	Shaima Obaid Mustafa	Lecturer
89.	Enas Qusay Douri	Lecturer
90.	Ammar Ghanem Amin	Asst. Lec.
91.	Ahlam Hussein Saleh	Asst. Lec.
92.	Ashwaq Hazem Najm	Asst. Lec.
93.	Ghaida Muhammad Abdel Aziz	Asst. Lec.
94.	Ali Ahmed Jassim	Asst. Lec.
95.	Najwa Muhammad Farhan	Asst. Lec.
96.	Ikhlas Ramadan Matar	Asst. Lec.
97.	Younis Ibrahim Muhammad	Asst. Lec.
98.	Najla Ahmed Suleiman	Asst. Lec.
99.	Maha Khalaf Ali	Asst. Lec.
100	Heba Fares Ahmed	Asst. Lec.
101	Zaid Tahseen Ali	Asst. Lec.
102	Manar Fawzi Thanoon	Asst. Lec.
103	Enas Waad Obaid	Asst. Lec.
104	Safa Rafe Abdul-Ihah	Asst. Lec.
105	Sahar Taher Fathil	Asst. Lec.
106	Zahra Khalid Nafie	Asst. Lec.
107	Rasha Mohammed Salih Hamza	Asst. Lec.
108	Rawaa Ahmed Khaaf Aswad	Asst. Lec.
109	Zahra Jasim Ramadhan	Asst. Lec.
110	Sarah Nazar Ghanim Gameel	Asst. Lec.
111	Safwan Jasim Sultan	Asst. Lec.
112	Azeez Tamo Koro Kijel	Asst. Lec.
113	Ali Salih Hamza	Asst. Lec.
114	Faidai Nooruldeen Saeed	Asst. Lec.
115	Mustafa Taha Daham	Asst. Lec.
116	Muthafar Sideq Abdulkareem	Asst. Lec.
117	Manar Khudher Ahmed Ali	Asst. Lec.
118	Nooralhuda Ahmed Mohamed Taher	Asst. Lec.
119	Hadeel Tariq Sadoon Ahmed	Asst. Lec.
120	Hasir Abdulameer Abdulalla Mohammed	Asst. Lec.

A. Administrators and support staff

	Full Name	**Job title**
.1	Fella Kedar Muhammad Saleh Yahya	Senior biology
.2	Laith Louay Tawfiq Al Muhammad Agha	Senior biology
.3	Maha Azad Hamed Daoud	Senior biology
.4	Daoud Fathi Amin Ahmed	Senior biology
.5	Nebras Nasih Saeed	Senior biology
.6	Nour Fawaz Hashem	Biology
.7	Rehan Nashwan Abdulrahman	Senior biology
.8	Najla Mohammed Ayoob	Biology
.9	Hiba Ahmed Mohammed Salih	Asst. Biology
.10	Kawther Mohammed Abdulrahman Izo	Asst. Biology
.11	Ahmed Adnan Ahmed	Asst. Agricultural engineer

	Names	**Title job**
1	Abeer Younis Jarjees	Printer
2	Marwan Sami Awni	Reception official
3	Waleed Sideeq Kaka	Services official
4	Yasir hachim	Services official

7th Axis: The Department's Infrastructure

Study buildings and laboratories

The department includes offices and annexes, including classrooms, administrative offices, and laboratories. The department has two buildings qualified for theoretical and practical teaching as follows.

Classrooms

The department has 11 classrooms qualified to receive students at the undergraduate and postgraduate levels, and they are equipped with most of the needs and illustrative means for delivering lectures and scientific discussions.

Laboratories

They are shown in the following table.

Laboratories of biology department

Using lab (Undergraduate and Graduate)	Hours No. In work	Laboratory readiness %	Devices No.	Student NO.	Lab area M^2	Name of laboratory
undergraduate	21	90%	0	30	12×8	Microbiology
undergraduate	18	30%	7	30	12×8	Insect laboratory
undergraduate	18	40%	5	30	12×8	Plant Taxonomy and anatomy
undergraduate	18	40%	3	30	12×8	Tissues and embryos
undergraduate	24	25%	5	18	12×8	Genetics
undergraduate	12	0	0	18	12×8	Environment lab
undergraduate	18	0	0	19	12×8	Animal physiology
undergraduate	18	0	0	19	12×8	Plant physiology
undergraduate	12	70%	13	20	12×8	Immunity
undergraduate	18	0	11	20	12×8	Fungi
undergraduate	24	0	5	30	12×8	Biology
postgraduate	20	0		10	12×8	Advanced histology and physiology
postgraduate	20	0	6	10	12×8	Microbiology - Ph.D degree

postgraduate	20	0		10	12×8	Microbiology - Master's degree
postgraduate	20	0		10	12×8	Higher Life Sciences - Biology
postgraduate	30	%60	15	Open	12×8	Devices lab
postgraduate	50	30%	9	4	12×8	Tissue culture
undergraduate	12	0		30	12×8	Computers 1 - 2
undergraduate	18	40%	8	30	12×8	Parasites and invertebrates
postgraduate	15	0	8	open	12×8	Research 1
postgraduate	51	30%	10	open	12×8	Research 2
postgraduate	20	70%	18	open	12×8	Research 3
postgraduate	51	30%	1	open	12×8	Research 4
postgraduate	18	0	٨٠ ٥٢	open	12×8	Research 5
Undergraduate	18	40%	7	open	12×8	Insects

Library and references

The department has a wide library that includes two suites, the first one is for various books and references, where the library includes various scientific journals in different specializations and from different publishing sources, as well as Iraqi and Arab scientific journals, as well as periodic CDs of books and modern research. The second suite includes a reading room equipped with air conditioning and cooling equipment, as well as obedience supplies. The department plans to expand the library, whether in archiving books and resources or the reading room.

Natural History Museum

The museum was established in 1954 in one of the halls of the Shurikia preparatory in the right bank of Mosul city. After 10 years , the museum building was established by Mosul municipality in Al- Shahada park in front of Mosul judgment. In 1967 the property of museum was transferred to University of Mosul – College of Sciences by administratively linked to College of Sciences and scientifically affiliated in Biology department. In 2003 the museum's contents were transferred to university center on right bank, and it has been distributed their contents on storges of college of Management and Economics , and College of Sciences. Many attempts were happened for choosing a suitable place for the museum in complex of university in 2009, and it became affiliated with presidency of Mosul university. Museum has access to main street. Finally , it has been agreed on the site which occupied current museum close of university garage.

Current building consists of two floors. Ground floor includes main hall ,administration room, and mummification while second floor include classrooms, exhibition for botanical herbarium and displays of biology department.

Museum directors are:

1. Dr. Abdul Latif Thanoun Al Khazraji..... until 1995
2. Dr. Riyad Khalil Al-Barhawi 1995-1997
3. Dr. Nadeem Ahmed Ramadan.....1998-2000
4. Dr. Mona Hussein Ali..... 2000-2009
5. Dr. Zuhair Ibrahim Fatouhi.....2009-2013
6. Dr. Riyad Khalil Al-Barhawi.....2013-2018
7. Dr. Osama Muhammad Saeed.....2018-2020
8. Dr. Israa Al Sammak ..... 2020- until now

All museum directors are from the Biology Department

8th Axis: Institutional Support

Supporting the educational institution in terms of financial resources and constructive leadership must be effective to ensure the sustainability and value of the program. Resources must be prepared to ensure the continuity and operation of all facilities and laboratory equipment related to the program, in addition to supporting the service-related items.

The Department of Biology is affiliated with the College of Science at the University of Mosul. The College of Science contains the Accounts Division, which manages financial affairs at the college level. Addition to support from international organizations and civil society organizations. However, these contributions constitute only a small portion of government allocations. Therefore, the main source of financial support for departments is from government allocations.

Government allocations to the department

The allocations included the provision of a fire system, laboratory equipment, and classroom chairs.

Chapter III

Results and analysis using (SWOT)

And improvement plan

SWOT analysis system

SWOT analysis is known as the framework that is used to evaluate a company or institution, identifying its strengths and weaknesses, and identifying the opportunities and threats that may be exposed to it. It is also called the "SWOT matrix" or the "Quarter analysis tool." This analysis is not limited to projects only, but rather includes several other fields such as marketing, human development, and business management. The emergence of this analysis goes back to experts at Stanford University, where this analysis was conducted between 1960 and 1970 under the supervision of Albert Humphrey, with the aim of identifying the reasons for the failure of joint planning, the resulting economic problems, and how to address them.

The importance of SWOT analysis

SWOT analysis is responsible for helping projects on improvement their position in the market, as its importance stems from the fact that it works on:

1. Show strengths and exploit them to achieve project goals.
2. Show weaknesses, work to correct them and benefit from them.
3. Explore good opportunities and benefit from them in developing the project.
4. Study potential threats to the project, and work to avoid them.
5. Develop alternative plans, supplementary plans, and emergency arrangements for the project.
6. Work on marketing strategies, so that they are creative and distinctive.
7. .Prepare a risk management plan for the project.
8. It helps measure the project's performance compared to its competitors in the market.
9. Knowing and identifying tools that help develop project performance.

SWOT analysis is used in the strategic planning process, as it is an important tool for exploring opportunities for success and where threats are located.

SWOT Analysis Elements:

SWOT analysis is an abbreviation of four words in the English language that represent the elements on which the analysis is based. These elements relate to the external and internal environment of the project, which are:

Strengths S

Weaknesses W

Opportunities O

Threats T

Results

The results of the self-evaluation study showed the extent to which the standards were met as follows.

درجة المطابقة			Standard name	Standard NO.
Totally	Partially	NO		
✓			**Students**	1
✓			**Objective of educational program**	2
✓			**Program outputs**	3
	✓		**Continuous quality improvement**	4
✓			**Curriculums**	5
✓			**Teaching staff**	6
	✓		**The capabilities and infrastructure of the department**	7
	✓		**Institutional support**	8

Analysis the outcomes by SWOT

1st Axis :Students

Strength point

- Provides modern resources and books for students and provides free education books for undergraduates studies .
- The educational institution provides a clear, specific and announced admission policy.
- Introductory and instructive booklets for student services are available, which are the student's guide.
- The department's sponsorship of artistic and sports activities
- There are mechanisms for activating communication with graduates.

Weaknesses

- Accepting students to colleges on a central basis sometimes does not reflect the students' desire.
- There are no foreign students.
- The small number of scholarships available to students at reputable international universities.

Opportunities

- Put scientific visit programs to enhance the practical aspect of students.
- Modernizing studies and curricula and focusing more on extracurricular scientific activities.

Risks

- Reflection of the risks of the security situation on the lives of students.
- Lack of job opportunities after graduation, which affects students' motivation.

Improvement plan

- Providing financial support to develop scientific, artistic, sports, cultural capabilities and encouraging students to participate in fields that match their interests and needs.
- Improving teaching and learning through continuous evaluation.
- Continuous development of the infrastructure of the administration and the department as whole
- Encouraging teamwork among students.

2nd Axis: Objectives Academic Program

Strength Point

*Publishing the mission, vision, and goals of the university, college, and department on their websites.

Weaknesses

•There is no mission and vision for the educational program level.

•The lack of a mechanism to activate relations between the corresponding departments and colleges at the Arab and international levels.

Improvement plan:

*Disseminate the content and message of the department outside the institution by presenting it to the society, such as parents of students.

*A plan must be developed to build relationships between the institution and international institutions.

*A clear strategy must be drawn up and followed to measure the criterion for achieving the goal.

*Forming a unit to develop students' non-athletic talents, noting that the college contains a sports unit in addition to sports, which already exists.

3rd Axis: The Outcomes of Program

Strength point

• Publishing the educational objectives of the university, college and department on their websites as well .

• The teaching methods are appropriate, which facilitates the teaching work to develop the lecture method.

• There is a research orientation in the department.

• Strengthening the cooperation mechanism with society through cooperation mechanism channels.

• Follow an organized approach in the department regarding the distribution of responsibilities and management in the department.

Weaknesses:

- Limited training and development courses for teaching and administrative staff.
- Limited allocations for scientific research, fees for lectures, supervision of graduate studies, and scientific evaluation.
- Limited opportunities to exchange experiences with external universities.

Opportunities:

- Interest in obtaining accreditation.
- Signing a memorandum of understanding with different universities.
- State institutions and the private sector in Iraq need researchers specialized in life sciences.
- The need for a number of department members to contribute and benefit from agreements with corresponding universities.
- Enhancing the practical aspect and exchanging experiences through joint seminars and conferences with many parties and field visits.

Risks:

•Lack of awareness of the importance of biology in all areas of societal life.

•Lack of awareness of the extent of health problems.

Improvement plan

- Develop a plan and prepare a team to make visits to the institutions where college graduates work to learn about their scientific competencies.
- Conducting a survey of graduates in the labor market.
- The educational institution prepares annual evaluation reports on the contributions it has made to society in detail.
- Setting a dedicated budget to organize student training programs in specialized institutions locally and internationally.

4th Axis : Continues Improvement

Strength point

- The department began the process of continuous assessment, evaluation, and improvement .
- The preparation of the course portfolio began through lectures and ongoing advice to the faculty by the department's Quality Assurance Committee and the Dean's Office.

Weaknesses:

- Lack of sufficient green spaces.

Opportunities:

- Continuous encouragement and support from the Dean's Office and the Dean personally of the departments.

Risks:

- Lack of financial support.
- Lack of modern tools, methods and techniques used in teaching and learning.

Improvement plan

- There is a serious interest in addressing these weaknesses through instructions from the dean sent to each department. These instructions are the necessity of providing the largest number of classrooms and equipping them with all the modern methods used in the traditional as well as electronic education method. Each department in the college should also be trained by experts to familiarize faculty members with new teaching and learning methods and encourage faculty members to use them.
- Identifying additional programs and courses for outstanding students.
- Conduct an evaluation of educational outcomes so that they are compatible with local and international standards.
- Adopting other types of education (open education, distance education).
- Increase financial support for the department/section .

5th Axis :Curriculum

Strength point :

•Scientific topics consist of sciences that are appropriate to the student's field of study.

•Teaching methods enhance student learning in the department.

•A special committee, the Curricula Evaluation and Review Committee, writes their proposals, if any, to develop the curriculum.

Weaknesses:

•The curriculum does not help students learn the principle of teamwork.

•The absence of mechanisms for taking the opinions of those concerned with the labor market into the program.

Opportunities:

•Coordinating with international university faculties and accrediting their programs in order to reduce time and effort to reach an advanced stage in curriculum development.

•Redesigning curricula to allow for interdisciplinary teaching and learning.

Risks:

•Failure to meet the changing labor market requirements and development through school curricula due to rapid developments in all fields.

Improvement plan

- Increasing the number of agreements with corresponding departments in reputable international universities to develop Curricula and hosting curriculum experts at international universities to discuss their evaluation mechanisms and its development.
- Increased financial support and increased number of agreements with corresponding departments in reputable international universities for Curriculum Development.
- Develop a plan to study the curricula to be developed and select the corresponding departments.
- Curriculum development should be more flexible and generally controlled by the college.
- The curriculum must include the principle of teamwork

6th Axis: Faculty Members

Strength point:

• The teaching methods are appropriate, which facilitates the teaching work to develop the lecture method.

•There is a very good research orientation in the department.

•Strengthening the cooperation mechanism with society through cooperation channels.

•Follow an organized approach in the department regarding the distribution of responsibilities and management in the department.

Weaknesses:

•Limited training and development courses for teaching and administrative staff.

•Limited allocations for scientific research, fees for lectures, supervision of graduate studies, and scientific evaluation.

•Limited opportunities to exchange experiences with external universities.

Opportunities:

•The need for a number of department members to contribute and benefit from agreements with corresponding universities.

•The need to benefit from the expertise of departments related to the department to develop curricula to serve the health and environmental reality in the city.

•The Foundation allocates some incentive rewards and certificates of appreciation to creative and distinguished faculty members in the fields of teaching, scientific research and community service.

•The institution adopts some rules to develop the professional capabilities of faculty members

•Enhancing the practical aspect and exchanging experiences through joint seminars and conferences with many parties and field visits.

•Opportunities to sign research cooperation contracts with state institutions to serve society and direct research towards the applied direction.

Risks

•The modest experience of some teachers sometimes prevents the proper implementation of the curriculum.

7th Axis : Infrastructure

Strength point

•Some laboratories are equipped with not too bad equipment.

Weaknesses:

- The department needs sufficient additional offices for faculty members and an expansion of laboratories.
- It is necessary to provide the department and laboratories with modern and advanced devices and equipment.
- The department needs to an elevator.

Opportunities:

- Developing the laboratory by subjecting it to calibration and quality requirements.
- Encouraging cooperation with state departments to act as a bridge between the university and society.
- •Classrooms and laboratories must be available with modern equipment that is compatible with the objectives of the program and provides an appropriate educational environment.
- Providing these requirements is necessary to increase interaction between the teaching staff and students and to create an appropriate and encouraging climate for the growth and development of the profession.
- The program must provide an opportunity for students to learn and use the latest scientific equipment.
- Information technology infrastructure must be available to support the educational activities carried out by students and teachers and the educational objectives of the program and the educational institution.

Risks:

•The continued limited financial allocations lead to a narrow location in the department and limited laboratory halls.

•Limited development of laboratory equipment due to financial allocations and severe routine in this field.

Improvement plan

•Providing an elevator for the department.

8th Axis: Institutional Support

Strength Point:

•Good teaching income .

Weaknesses:

•Purchasing procedures are complex and restricted.

•Insufficient funding for research and purchasing the necessary devices and equipment.

Risks:

Financial corruption and the security situation that affects the state and its capabilities in general.

Improvement plan:

- Adopting self-financing sources.
- Increase funding for maintaining devices and equipment and purchasing new devices.
- Ensuring integration between material resource planning and the college plan and providing financial allocations.
- Preparing intensive training and professional development programs for specialists in the field of active investment.
- The college must have the ability to make appointments, retirements, or transfers of employees.

The file for completing the self-evaluation report for ABET standards for the Biology Department was reviewed, audited and approved by:

scientific Committee

the signature

the name

the date

Head of Department

the signature

the name

the date

Quality Assurance and Performance Evaluation Division

the signature

the name

the date

Assistant Dean for Scientific Affairs

the signature

the name

the date

Dean

the signature

the name

the date

The file for completing the self-evaluation report for ABET standards for the Biology Department was reviewed, audited and approved by:

scientific Committee

the signature

the name Prof. Dr. Amjad Abdul Hadi Mohammed

the date

Head of Department

the signature

the name Prof. Dr. Amjad Abdul Hadi Mohammed

the date

Quality Assurauce and Performance Evaluation Division

the signature

the name Dr. Mahmood abdulkhaleq salmaidaie

the date

Assistant Deau for Scientific Affairs

the signature

the name Assist. Prof. Dr. Muhammad S. Hamead

the date 17/4/2024

Dean

the signature

the name Prof. Dr. Hiyam Adil Al-Tai

the date 16/4/2024