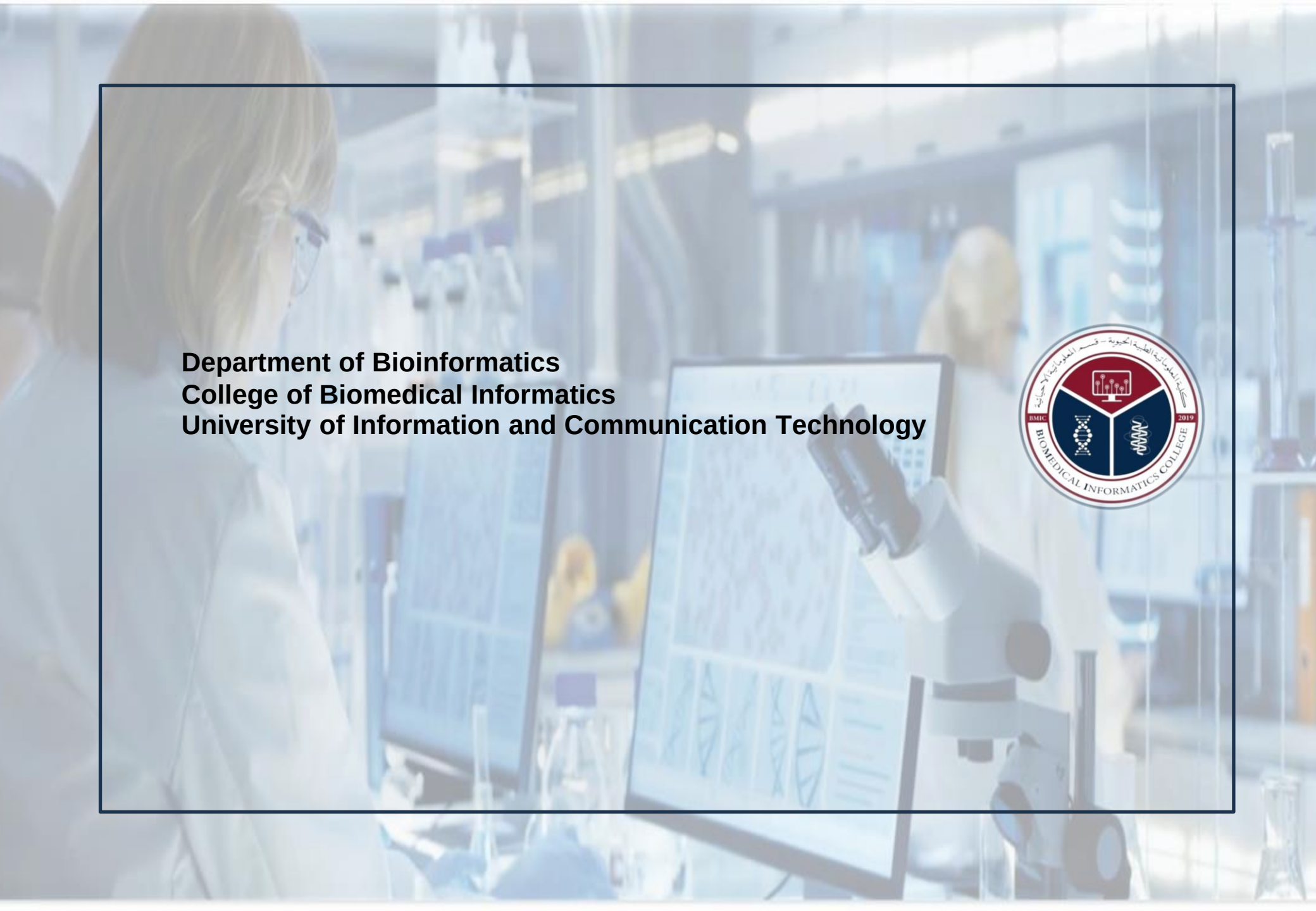


Department of Bioinformatics
College of Biomedical Informatics
University of Information and Communication Technology

Guide to the Department of Biomedical Informatics

The Department of Bioinformatics integrates computational principles and methods with the life sciences to analyze and understand large and complex biological datasets.

Bioinformatics

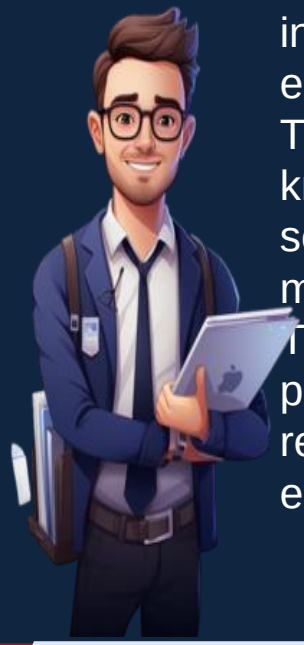
2026

Profile

Overview of the Department of Bioinformatics

Profile

Overview of the Department of Bioinformatics



The department aims to prepare specialized professionals capable of designing and developing algorithmic tools, databases, and artificial intelligence models to address problems in genomics, proteomics, epidemiology, computational biology, and drug design.

The program provides a balanced combination of theoretical knowledge and practical skills in programming and statistics, genetic sequence analysis, functional data analysis, and biological systems modeling.

The department also places great emphasis on ethics and privacy protection, including the security of health and biological data, responsible research conduct, and the responsible use of genetic engineering and artificial intelligence technologies.

Word from the Head of the Department of Bioinformatics

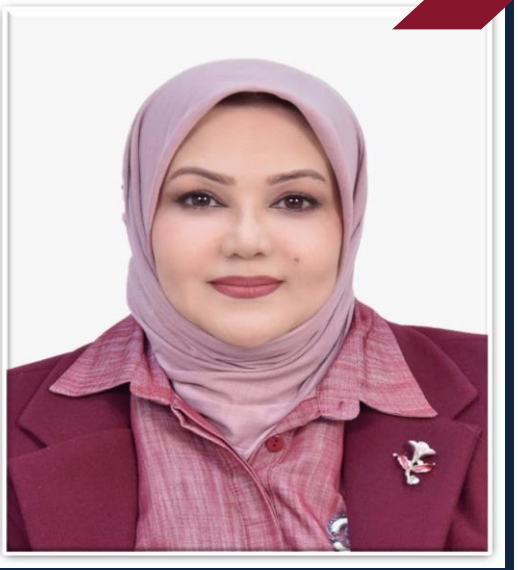
Peace, mercy, and blessings of Allah be upon you all,

It is my great pleasure and honor to welcome you all to the Department of Bioinformatics. This promising field represents a bridge toward the future of medical and life sciences, where the complexities of biology converge with the power of computing, artificial intelligence, and data analysis.

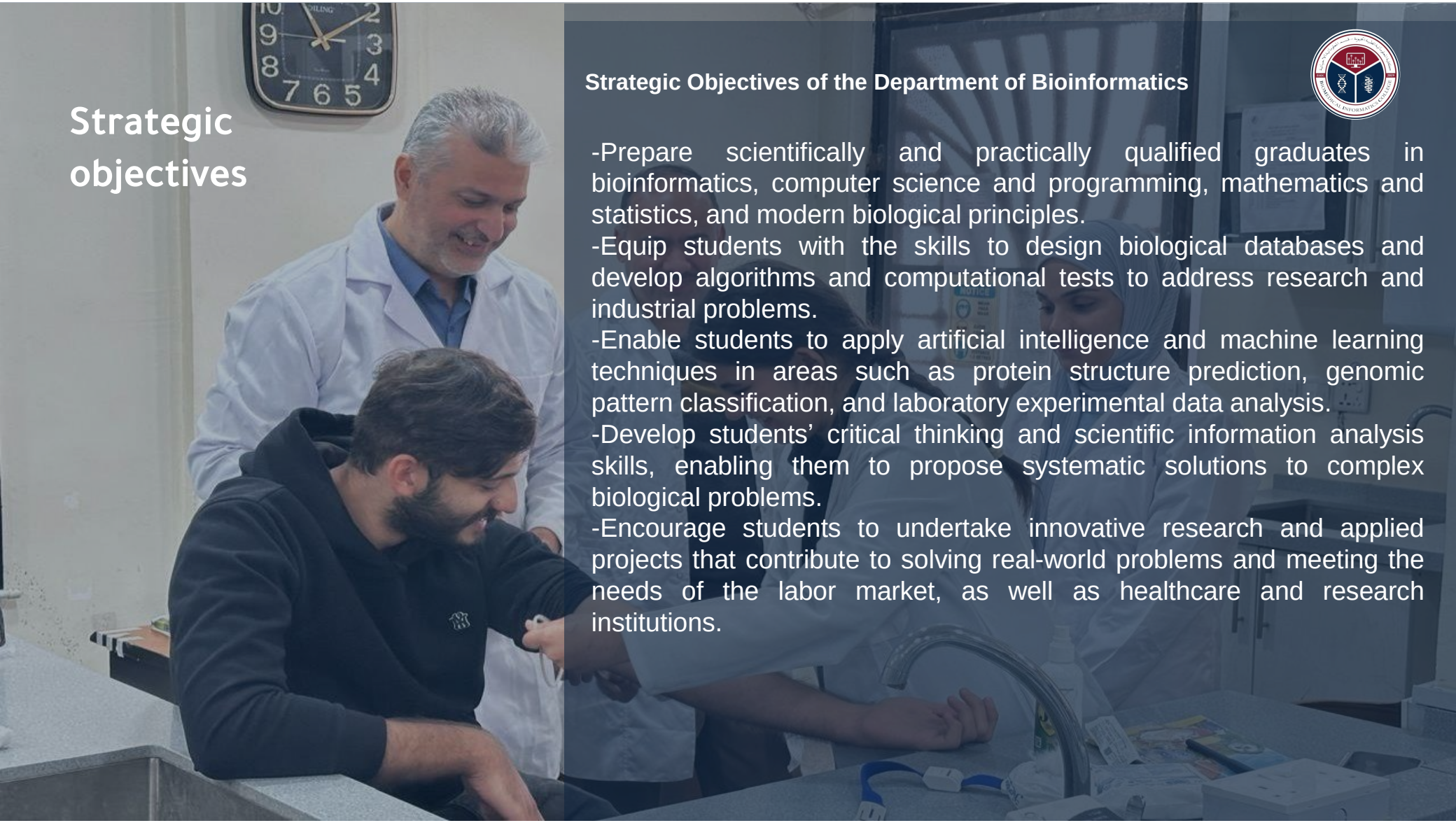
Our vision in this department extends beyond providing academic knowledge; it encompasses preparing a generation of creative and highly skilled professionals capable of deciphering complex biological data, contributing effectively to the advancement of healthcare, drug discovery, and the understanding of diseases in ways that were previously unimaginable.

We are committed to providing an outstanding educational and research environment that fosters innovation and keeps pace with the latest global developments. We are supported by the expertise of our esteemed faculty members and the determination of our students, who are passionate about knowledge and discovery.

I wish all our students a successful and distinguished academic journey. May your steps today lay the foundation for the innovations of tomorrow.



Assist. Prof. Dr. Mays Abdulhadi Al-Sharqi
Head of the Department of Bioinformatics
College of Biomedical Informatics



Strategic objectives

Strategic Objectives of the Department of Bioinformatics

-Prepare scientifically and practically qualified graduates in bioinformatics, computer science and programming, mathematics and statistics, and modern biological principles.
-Equip students with the skills to design biological databases and develop algorithms and computational tests to address research and industrial problems.
-Enable students to apply artificial intelligence and machine learning techniques in areas such as protein structure prediction, genomic pattern classification, and laboratory experimental data analysis.
-Develop students' critical thinking and scientific information analysis skills, enabling them to propose systematic solutions to complex biological problems.
-Encourage students to undertake innovative research and applied projects that contribute to solving real-world problems and meeting the needs of the labor market, as well as healthcare and research institutions.

Vision

To become a distinguished academic and research reference locally and regionally in the field of bioinformatics by leveraging computer technologies, data science, and artificial intelligence to analyze biological and medical data. This will contribute to advancing the quality of scientific research, supporting the healthcare sector and industrial innovation, while adhering to quality standards and ensuring ethical and legal compliance.

Message

The Department of Bioinformatics aspires to provide high-quality, interdisciplinary education that equips students with strong foundations in computer science, biology, statistics, and data science, enabling them to address complex challenges in the biomedical field.

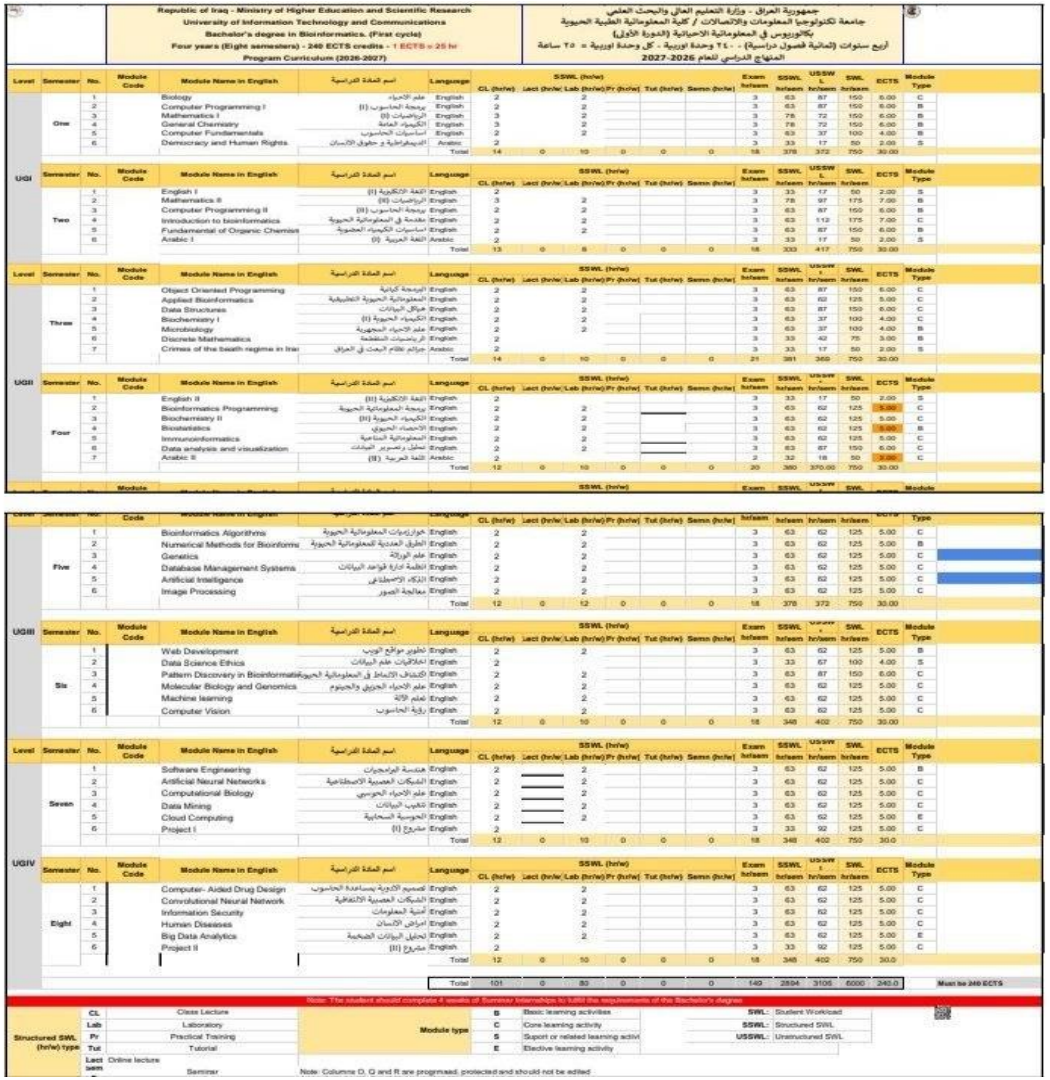
Promote advanced scientific research in bioinformatics, genomics, proteomics, systems biology, and biomedical data analysis, contributing to scientific discovery and the advancement of healthcare.

Support the development of bioinformatics solutions that contribute to improving disease diagnosis, drug discovery, personalized medicine, and public health decision-making.

Academic Degree

Academic Degrees Awarded to Students of the Department of Bioinformatics

The department awards students a **Bachelor's Degree in Bioinformatics Sciences**.
The Department of Bioinformatics accepts graduates of secondary education from the **Scientific, Applied, Biological Sciences, and Vocational branches**.



Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Information Technology and Communications
Bachelor's degree in Bioinformatics. (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2026-2027)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة تكنولوجيا المعلومات والاتصالات / كلية المعلوماتية الطبية الحيوية
بكالوريوس في المعلوماتية الاحيائية (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام 2026-2027

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
UGI	One	1		Biology	علم الاحياء	English	2		2				3	63	87	150	6.00	C
		2		Computer Programming I	برمجة الحاسوب (I)	English	2		2				3	63	87	150	6.00	B
		3		Mathematics I	الرياضيات (I)	English	3		2				3	78	72	150	6.00	B
		4		General Chemistry	الكيمياء العامة	English	3		2				3	78	72	150	6.00	B
		5		Computer Fundamentals	أساسيات الحاسوب	English	2		2				3	63	37	100	4.00	B
		6		Democracy and Human Rights	الديمقراطية و حقوق الانسان	Arabic	2						3	33	17	50	2.00	S
						Total	14	0	10	0	0	0	18	378	372	750	30.00	
UGI	Two	1		English I	اللغة الانكليزية (I)	English	2						3	33	17	50	2.00	S
		2		Mathematics II	الرياضيات (II)	English	3		2				3	78	97	175	7.00	B
		3		Computer Programming II	برمجة الحاسوب (II)	English	2		2				3	63	87	150	6.00	B
		4		Introduction to bioinformatics	مقدمة في المعلوماتية الحيوية	English	2		2				3	63	112	175	7.00	C
		5		Fundamental of Organic Chemist	أساسيات الكيمياء العضوية	English	2		2				3	63	87	150	6.00	B
		6		Arabic I	اللغة العربية (I)	Arabic	2						3	33	17	50	2.00	S
						Total	13	0	8	0	0	0	18	333	417	750	30.00	
UGII	Three	1		Object Oriented Programming	البرمجة كيانية	English	2		2				3	63	87	150	6.00	C
		2		Applied Bioinformatics	المعلوماتية الحيوية التطبيقية	English	2		2				3	63	62	125	5.00	C
		3		Data Structures	هياكل البيانات	English	2		2				3	63	87	150	6.00	C
		4		Biochemistry I	الكيمياء الحيوية (I)	English	2		2				3	63	37	100	4.00	C
		5		Microbiology	علم الاحياء المجهرية	English	2		2				3	63	37	100	4.00	B
		6		Discrete Mathematics	الرياضيات المنفصلة	English	2						3	33	42	75	3.00	B
		7		Crimes of the baath regime in Iraq	جرائم نظام البعث في العراق	Arabic	2						3	33	17	50	2.00	S
						Total	14	0	10	0	0	0	21	381	369	750	30.00	
UGII	Four	1		English II	اللغة الانكليزية (II)	English	2						3	33	17	50	2.00	S
		2		Bioinformatics Progranming	برمجة المعلوماتية الحيوية	English	2		2				3	63	62	125	5.00	C
		3		Biochemistry II	الكيمياء الحيوية (II)	English	2		2				3	63	62	125	5.00	C
		4		Biostatistics	الاحصاء الحيوي	English	2		2				3	63	62	125	5.00	B
		5		Immunoinformatics	المعلوماتية المناعية	English	2		2				3	63	62	125	5.00	C
		6		Data analysis and visualization	تحليل وتصوير البيانات	English	2		2				3	63	87	150	6.00	C
		7		Arabic II	اللغة العربية (II)	Arabic	2						2	32	18	50	2.00	C
						Total	12	0	10	0	0	0	20	380	370.00	750	30.00	
UGIII	Five	1		Bioinformatics Algorithms	خوارزميات المعلوماتية الحيوية	English	2		2				3	63	62	125	5.00	C
		2		Numerical Methods for Bioinforms	الطرق العددية للمعلوماتية الحيوية	English	2		2				3	63	62	125	5.00	B
		3		Genetics	علم الوراثة	English	2		2				3	63	62	125	5.00	C
		4		Database Management Systems	انظمة ادارة قواعد البيانات	English	2		2				3	63	62	125	5.00	C
		5		Artificial Intelligence	الذكاء الاصطناعي	English	2		2				3	63	62	125	5.00	C
		6		Image Processing	معالجة الصور	English	2		2				3	63	62	125	5.00	C
						Total	12	0	12	0	0	0	18	378	372	750	30.00	
UGIII	Six	1		Web Development	تطوير مواقع الويب	English	2		2				3	63	62	125	5.00	B
		2		Data Science Ethics	اخلاقيات علم البيانات	English	2						3	33	67	100	4.00	S
		3		Pattern Discovery in Bioinformatic	اكتشاف الانماط في المعلوماتية الحيوية	English	2		2				3	63	87	150	6.00	C
		4		Molecular Biology and Genomics	علم الاحياء الجزيئي والجينوم	English	2		2				3	63	62	125	5.00	C
		5		Machine learning	تعلم الآلة	English	2		2				3	63	62	125	5.00	C
		6		Computer Vision	رؤية الحاسوب	English	2		2				3	63	62	125	5.00	C
						Total	12	0	10	0	0	0	18	348	402	750	30.00	
UGIV	Seven	1		Software Engineering	هندسة البرمجيات	English	2		2				3	63	62	125	5.00	B
		2		Artificial Neural Networks	الشبكات العصبية الاصطناعية	English	2		2				3	63	62	125	5.00	C
		3		Computational Biology	علم الاحياء الحوسبي	English	2		2				3	63	62	125	5.00	C
		4		Data Mining	تنقيب البيانات	English	2		2				3	63	62	125	5.00	C
		5		Cloud Computing	الحوسبة السحابية	English	2		2				3	63	62	125	5.00	E
		6		Project I	مشروع (I)	English	2						3	33	92	125	5.00	C
						Total	12	0	10	0	0	0	18	348	402	750	30.0	
UGIV	Eight	1		Computer- Aided Drug Design	تصميم الادوية بمساعدة الحاسوب	English	2		2				3	63	62	125	5.00	C
		2		Convolutional Neural Network	الشبكات العصبية الالتفافية	English	2		2				3	63	62	125	5.00	C
		3		Information Security	امنية المعلومات	English	2		2				3	63	62	125	5.00	C
		4		Human Diseases	امراض الانسان	English	2		2				3	63	62	125	5.00	C
		5		Big Data Analytics	تحليل البيانات الضخمة	English	2		2				3	63	62	125	5.00	E
		6		Project II	مشروع (II)	English	2						3	33	92	125	5.00	C
						Total	12	0	10	0	0	0	18	348	402	750	30.0	
						Total	101	0	80	0	0	0	140	2894	3106	6000	240.0	Must be 240 ECTS

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

Structured SWL (hr/w) type: CL Class Lecture; Lab Laboratory; Pr Practical Training; Tut Tutorial; Lect Online lecture; Semn Seminar

Module type: B Basic learning activities; C Core learning activity; S Sport or related learning activi; E Elective learning activity

SWL: Student Workload; SSWL: Structured SWL; USSWL: Unstructured SWL

Note: Columns D, G and R are programed, protected and should not be edited

Department of Bioinformatics

Study Plan

To view the electronic version

Job Opportunities

Job Opportunities in Bioinformatics Locally and Globally

The expanding need for specialized technical and medical expertise in healthcare institutions provides growing opportunities for graduates of this field in:

1. Research Institutions and Universities (Research Assistant, Bio-data Analyst)
2. Biotechnology and Pharmaceutical Companies (Drug Design, Drug Molecule Discovery)
3. Genetic Sequencing and Genomic Analysis Laboratories
4. Digital Health and Clinical Analytics Companies
5. Governmental Institutions and Public Health Organizations (Epidemic Surveillance and Epidemiological Data Analysis)
6. Software and Scientific Tool Development Companies

Skills of a Bioinformatics Student

- Analyzing and interpreting genome sequencing data and molecular experiments.
- Developing software and algorithms to process and classify biological data.
- Designing and implementing biological databases and user interfaces for retrieving biomedical information.
- Conducting scientific research in genetics and DNA science, and publishing the results in specialized journals and conferences.
- Postgraduate study opportunities in genomics, proteomics, computational biology, and biomedical artificial intelligence.
- Joint research activities with national and international laboratories, as well as industrial institutions.
- Participating in national projects for disease monitoring and health risk analysis.

كلية المعلوماتية الطبية الحيوية – قسم المعلوماتية الأحيائية

BMIC 2019

BIOMEDICAL INFORMATICS COLLEGE

Preparing competent professionals who can program and skillfully work with digital biological systems, enabling them to keep pace with the technological revolution in the medical and research sectors.

Laboratories of the Bioinformatics Department

The role of these laboratories is to transform the student from a "receiver of information" into a "creator and analyst of it," preparing them to become innovative professionals capable of working in smart hospitals, cancer and genetics research centers, and pharmaceutical development companies.

Laboratories

Highlights from student activities and department visits

Ministry of Youth and Sports

Baghdad Mayoralty

American University

Humanitarian and voluntary field trips

Bioinformatics Department faculty

Head of Department
Assistant Professor Dr. Mays Abdul-Hadi Al-Sharqi
Computer Science – Iraq

Assistant Professor Dr. Sanaa Ahmed Kadhim
Computer Science – Iraq

Lecturer Zina Mohsen Arka
Computer Science – China

Professor Dr. Imad Qasim Habib
Computer Science – Malaysia

Professor Dr. Hussein Lafta Howeir
Food Sciences – Iraq

Professor Dr. Intisar Shdeed Jlayb
Computer Science – United Kingdom

Dr. Abdul-Qadir Fares Kamal
Mathematics – Iraq

Lecturer Dr. Mohammed Karim Ali
Law – Egypt

Lecturer Dr. Mohammed Fadhil Zamil
Computer Science – United Kingdom

Assistant Professor Zeinab Salem Jaafar
Biology – South Korea

Lecturer Dr. Abeer Hussein Ajil
Biology – Iraq

Bioinformatics Department faculty

Lecturer Jawan Kan'an Alwan
Computer Science – India

Lecturer Dr. Nada Nizar Kazim
Biology – Iraq

Lecturer Dr. Maysaa Ahmed Abdul-Karim
Biology – Malaysia

Assistant Professor Dr. Omayma Qasim Yahya
History – Iraq

Assistant Lecturer Ali Abdul-Qadir Mehdi
Biology – Malaysia

Assistant Lecturer Ahmed Uday Izzat
Computer Science – Iraq

Assistant Lecturer Hasanain Abdul-Jaleel Sa'eed
Applied Physics – India

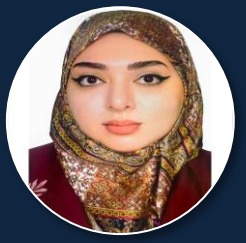
Assistant Lecturer Shaimaa Khalid Muwaffaq
Biotechnology – Malaysia

Assistant Lecturer Amal Hanash 'Adhab
Computer Science – Iraq

Bioinformatics Department faculty

Assistant Lecturer Haider Fadhil Abed
Media & Mass Communication – Iraq

Assistant Lecturer Ahmed Saleh Mehdi
Computer and Communications Engineering – Malaysia



Assistant Lecturer Marwa Atef Raouf
Biotechnology – Iraq

Assistant Lecturer Noor Sabah Qasim
Computer Communications Engineering – Iraq

Assistant Lecturer Noor Mohammed Abdul-Hussein
Genetic Engineering and Biotechnology – Iraq

Assistant Lecturer Olan Alauddin Hussein
Biotechnology – Iraq

Assistant Lecturer Farah Mohammed Abdul-Sada
Biotechnology Sciences – Iraq

Assistant Lecturer Reem Mustafa Rahim
Accounting – Iraq

Assistant Professor Dr. Mazin Haitham Arzoooqi
Computer Science – Egypt

Bioinformatics Department faculty

Lecturer Hasanein Karim Abed
Computer Science – Russia

Assistant Lecturer Ayman Ali Sulaiman
Accounting – Jordan

Lecturer Dr. Hanaa Saleem Ghanim
Arabic Language – Iraq

Assistant Lecturer Maryam Qasim Hammood
Biology – Iraq

Lecturer Dr. Khadija Abbas Sahn
Biology – Iraq

Lecturer Nada Sabeeh Mohammed
Applied Mathematics –

Assistant Lecturer Qamar Adnan Jasim
Medical Physics – Iraq

Assistant Lecturer Farah Qahtan Kamil
Physics – Iraq

Assistant Lecturer Shahad Osama Fouad
English Translation –

Bioinformatics Department faculty

Lecturer Hasanain Kareem Abed
Computer Science – Russia

Assistant Lecturer Ayman Ali Sulaiman
Accounting – Jordan

Lecturer Dr. Hanaa Saleem Ghanim
Arabic Language – Iraq

Lecturer Dr. Khadija Abbas Sahn
Biology – Iraq

Lecturer Nada Sabih Mohammed
Applied Mathematics – Iraq

Assistant Lecturer Farah Qahtan Kamil
Physics Sciences – Iraq

Top Student List / – Department of Bioinformatics

Academic Year 2019–2020
First Level:
1st Rank: Maryam Ali Waleed
2nd Rank: Mustafa Ya'rub Abdul-Hussein
3rd Rank: Mustafa Maitham Mahmoud
Academic Year 2020–2021
First Level:
1st Rank: Zahraa Raid Musa
2nd Rank: Mohammed Riyadh Sukran
3rd Rank: Maryam Hassan 'Alu
Second Level:
1st Rank: Mustafa Maitham Mahmoud
2nd Rank: Maryam Ali Waleed
3rd Rank**:** Narges Ahmed Jassim

Top Student List / – Department of Bioinformatics

Academic Year 2021–2022
First Level:
1st Rank: Mohammed Ihsan Sanad
2nd Rank: Tabarak Mustafa Abdul-Rahman
3rd Rank: Ja'far Mohammed 'Ali
Second Level:
1st Rank: Saba Saleem 'Ali
2nd Rank: Maryam Hassan 'Alu
3rd Rank: Mahmoud Nabil Abdul-Razzaq
Third Level:
1st Rank: Mustafa Maitham Mahmoud
2nd Rank: Maryam 'Ali Waleed
3rd Rank: Rana Firas Hashim
Academic Year 2022–2023
First Level:
1st Rank: Idrees Hassan Hamad
2nd Rank: Hajar 'Imad 'Adnan
3rd Rank: Janat Zaid Ismail
Second Level:
1st Rank: Mohammed Ihsan Sanad
2nd Rank: Tabarak Mustafa Abdul-Rahman
3rd Rank: Hawraa Basim Najm
Third Level:
1st Rank: Saba Saleem 'Ali
2nd Rank: Maryam Hassan 'Alu
3rd Rank: Shahad Salah Farhan
Fourth Level:
1st Rank: Maryam 'Ali Waleed
2nd Rank: Mustafa Maitham Mahmoud
3rd Rank: Hiba Qasim Abdul-Hadi

Ademic Year 2023–2024
First Level:
1st Rank: Sarah Salim 'Ali
2nd Rank: Zubaida Mulhim Younis
3rd Rank: Rand Sa'ad Falih
Second Level:
1st Rank: Idrees Hassan Hamad
2nd Rank: Hajar 'Ammar 'Adnan
3rd Rank: Janat Zaid Ismail
Third Level:
1st Rank: Mohammed Ihsan Sanad
2nd Rank: Hawraa Basim Najm
3rd Rank: Tabarak Mustafa Abdul-Rahman
Fourth Level:
1st Rank: Maryam Hassan 'Alu
2nd Rank: Saba Saleem 'Ali
3rd Rank: Nuha Hayyal Kazim

Top Student List / – Department of Bioinformatics

Academic Year 2024–2025
First Level:
1st Rank: Ru'a Ahmed Hadi
2nd Rank: Zahraa Riyadh Mohammed
3rd Rank**:** Adyan Omar Farooq
Second Level:
1st Rank: Zubaida Mulhim Younis
2nd Rank: Rand Sa'ad Falih
3rd Rank: Zahraa Sa'ad Kamil
Third Level:
1st Rank: Idrees Hassan Hamad
2nd Rank: Hajar 'Ammar 'Adnan
3rd Rank**:** Janat Zaid Ismail
Fourth Level:
1st Rank: Mohammed Ihsan Sanad
2nd Rank: Tabarak Mustafa Abdul-Rahman
3rd Rank: Hawraa Basim Najm

Contact Information – Bioinformatics Department

bi.bmic@uoitc.edu.iq

www.uoitc.edu.iq

To Watch the Bioinformatics Department Video

(Biomedical Informatics Department Guide 2026)

Location: Baghdad, Al-Mansour – Al-Niqabat Street – Adjacent to the Accountants Syndicate