

University of Mosul



First Cycle – Bachelor's degree (B.Sc.) – Forest science



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1. **Mission & Vision Statement**

Vision Statement

Excellence and sophistication in academic education, leadership in community service, and quality in scientific research in the fields of forestry sciences, striving for international recognition.

Mission Statement

The Forestry Department has contributed to graduating specialized cadres in forest sciences with bachelor's, master's, and doctoral degrees, as well as accepting and graduating Arab students from many Arab countries, including Libya, Syria, Saudi Arabia, Jordan, Kuwait, Sudan, Tunisia, Palestine, Algeria, and Mauritania. In the Forestry Department, many studies, applied research, and contracts with the public sector and ministries have been completed to serve the public interest, with the contribution of highly specialized scientific cadres represented by its professors. The department also provides forestry scientific consultations in its various specializations and participates in supervising and implementing many afforestation projects at the governorate level and in the country.

2. **Program Specification**

Programme code:	BSc-FOR. SC.	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

Write something like:

Forestry sciences is an academic discipline that focuses on the study of forest resources, including forest management, conservation, and sustainability. This field aims to develop scientific knowledge and technical skills related to forests and their diverse uses, whether environmental, economic, or social. It typically covers a

wide range of topics such as forest ecology, sustainable development, wildlife diversity, soil and water conservation, and forest management in the face of climate change.

In **Level 1**, students are introduced to the fundamentals of agricultural sciences in general and forestry sciences in particular, suitable for progression within the global agricultural and forestry program group. Core topics specific to the program are covered in **Level 2**, paving the way for specialized research-led modules in **Levels 3 and 4**. Consequently, graduates of Forestry Sciences from the university are trained to understand how research contributes to education, according to the mission statements of the university and the college.

In **Levels 2, 3, and 4**, students have the freedom to choose more than half of their module credits, provided that they select a diverse range of modules that reflect their specific specialization, along with various other sciences that complement their field. This ensures a broad scope of knowledge expected from graduates of the Forestry Sciences program, allowing students to develop their wide-ranging interests in forestry. Decisions regarding what to study are made in consultation with personal academic tutors.

The concept of research is reinforced and deepened from the outset through practical training, which is either integrated into lecture modules or taught in dedicated practical modules, alongside research seminars and specialized tutorials. In **Level 4**, all students undertake an independent research project, which may be a library-based or data analysis project (worth a certain number of credits) or a field or laboratory-based project (also worth a certain number of credits).

Academic tutorials in **Levels 1 and 2** are conducted with the same academic tutor, who is also the personal tutor for the students, providing continuity and progressive guidance. Tutorials in **Levels 1 and 2** include several workshops to teach skills, such as library use and presentation skills, followed by assessed exercises like essays and presentations, serving as opportunities to practice these skills in a subject-specific context.

Opportunities for international study years and industrial placements are also offered, and individual needs are discussed with the appropriate tutor and accommodated whenever possible

3. Program Objectives

1. Preparing scientifically specialized and well-trained personnel with high competencies in forestry sciences, capable of facing professional challenges and competing with their peers to serve society and meet labor market demands.
2. Developing a modern, stimulating educational environment equipped with advanced technologies and tools that enable students to compete, innovate, and excel, while fostering a desire for continuous learning, personal development, skill enhancement, performance improvement, teamwork, and decision-making in the field of forestry sciences.
3. Qualifying graduates with a sound understanding of agricultural legislation, legal and social issues, and a strong commitment to professional ethics and quality management in agriculture, particularly in forestry-related fields.
4. Efficient management and utilization of resources and effective problem-solving in agricultural establishments and projects within the framework of conserving natural resources, biodiversity, and promoting sustainable development in forestry sciences.
5. Possessing language proficiency and computer skills, and developing the ability to apply scientific and practical approaches in forestry research and contribute to solving related agricultural problems.
6. Ability to analyze the interactions between humans, plants, and soil with the broader environment in order to promote natural resource conservation and environmental protection.
7. Evaluating soil and water characteristics and determining appropriate agricultural land-use patterns in forestry under various environmental conditions, while ensuring soil conservation and water pollution prevention to support a clean and sustainable environment.

8. Demonstrating skills in advertising and marketing, as well as in labeling, presenting, and selling forest products.
9. Integrating knowledge of forest ecosystems to address the impacts of climate change on forest systems and the ecosystem services they provide, while promoting green, sustainable, and livable environments in urban and suburban areas.
10. Capability to manage, measure, and analyze natural resources and oversee public lands such as forests, national parks, reserves, wildlife habitats, and fire management.
11. Acquiring the necessary skills to assess and ensure the environmental, economic, and social sustainability of forests.
12. Improving the quality of forest products and related industries, ensuring the sustainable production of environmentally responsible wood products, and managing bioenergy plantations.
13. Solving environmental and forest resource-related issues, conserving biodiversity, promoting ecotourism as a source of income and social well-being, implementing carbon sequestration practices, and transitioning to a green and digital economy.
14. Capable of developing renewable materials and energy, formulating strategies for sustainable land use, and producing renewable biological resources (such as wood, plants, wood waste, and organic waste) that can be converted into valuable products (such as biofuels, bioplastics, textiles, and food and medical additives).
15. Gaining in-depth knowledge of the urban environment, sustainability, and the planning and management of urban green spaces and nature within cities to enhance their livability.
16. Able to assess and analyze forestry-related agricultural projects, invest in natural agricultural resources, and develop plans for their growth and improvement.
17. Capable of applying modern methods and analytical approaches in planning and implementing fertilization programs, sustainably utilizing land and water resources, managing waste, and minimizing pollution to obtain environmentally safe forest products.

4. **Student Learning Outcomes**

learning outcome	learning outcome code	Outcome	Exit range according to the Bologna Route Guide	The range of the output according to the competencies of all
Uses sufficient theoretical knowledge and ability to design appropriate experiments and sampling programs in the laboratory and field, taking into account technical, logistical, scientific and ethical constraints.	LO#1,B1	Identification of Complex Relationships.	Identify complex relationships LO#1	B Mental skills
Surveys and maps areas and 3D landscapes, performs landscape analysis, develops operational plans, and performs cost analysis for subject-related activities.	LO#2,D1	Oral and Written Communication	Oral and written communication LO#2	D Communication skills
He employs his expertise in the field of environmental modeling using geographic information systems.	LO#2,D2			
Demonstrates the ability to explain the principles and limitations of a wide range of advanced practical techniques for forest management, land reclamation, and ecological restoration.	LO#3,C1	Laboratory and Field Studies	Laboratory and field studies LO#3	C Applied skills
Students identify and possess the competencies necessary to formulate and analyze complex theoretical issues and research findings. Students are able to apply scientific and critical methods in analyzing their topic. Students gain an understanding and insight into the basic	LO#3,C2			

theories and concepts within the topic and are able to independently evaluate the methods used.				
The student extracts the use and processing of different types of numerical data, solves mathematically based problems, and applies and interprets statistical data.	LO#4,A1	Scientific Knowledge	Scientific knowledge LO#4	A Knowledge and understanding
Students acquire and develop new knowledge in the field of learning and independence skills necessary to enable them to continue their studies. They also develop a broad outlook and original thinking that will be useful for their careers. Students acquire and develop new knowledge in the field of learning and independence skills necessary to enable them to continue their studies. They also develop a broad outlook and original thinking that will be useful for their careers.	LO#4,A2			
He applies his expertise in forest, environmental and genetic resource management in forest science and forest management with the ability to work effectively individually or in multidisciplinary groups.	LO#5,B	Data Analyses	Data analysis LO#5	B Mental skills
Adheres to ethical principles in the fields of forestry and agricultural engineering, and has professional and ethical responsibility and awareness in these engineering applications.	LO#3,E1	Critical Thinking	Critical thinking and moral commitment LO#6	E Professional values, beliefs and ethics
Participates in analyzing problems to arrive at innovative and sustainable solutions based on scientific and professional evidence.	LO#6,E2			
Understands the legal consequences of engineering solutions and information on the effects of the application and practice of agricultural engineering on health and the environment and contemporary problems reflected in the field of engineering.	LO#6,E3			

Forestry Sciences is the study of the organization and operation of forests and natural resources at the molecular, cellular, organism, and population levels. Graduates obtain information on the historical, technical, and social aspects of forestry sciences and utilize basic knowledge toward realizing broader concepts. The department offers a Bachelor of Science in Forestry with a concentration in Forest Management; Sustainable Natural Resource Management; and Molecular Biology. Additionally, the department offers courses to a large number of students from other departments and supports pre-professional programs. The forestry curriculum and experiences are designed to prepare students, in part, for entry into environmental health programs, graduate studies, technical careers, and education.

Outcome 1

Identification of Complex Relationships

The student should be able to recognize the fundamentals of basic and applied sciences, as well as modern technologies related to agriculture and food, and the principles of planning and executing agricultural operations.

Outcome 2

Oral and Written Communication

The student should be able to propose commercial production plans for plant, animal, and food crops according to market systems by assessing the economic situation of the market and understanding its needs.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper.

5. **Academic Staff**

<u>Name and Academic Title</u>	<u>Specialization</u>
• Prof. Dr. Mohammed Younis Salim Al-Allaf	Remote Sensing
• Prof. Dr. Sumood Hussein Ali	Forest Management and Measurements
• Asst. Prof. Dr. Ammar Jasim Mohammed	Forest Management and Measurements
• Asst. Prof. Dr. Omar Muzaffar Omar	Forest Development and Silviculture
• Asst. Prof. Dr. Mohammed Asim Saeed	Forest Management
• Lect. Dr. Samer Amir Hanna	Forest Entomology
• Lect.. Dr. Hayes Sael Jirjis	Wood Science
• Asst. Munther Younis Mohammed	Forest Development and Silviculture
• Asst. Lect. Muhannad Hamed Younis	Forest Science
• Asst. Lect. Mohammed Samir Idris	Forest Science
• Lect. Dr. Faiza Ali Rasheed	Forest Management and Measurements
• Lect. Dr. Shaima Daa Ali	Forest Science
• Hamed Mohammed Ibrahim	Forest Science
• Hanan Ghanem Saadallah	Forest Science
• Asst. Prof. Dr. Anwar Nouri Mohammed	Forest Science
• Narmeen Mohammed Ali	Forest Science
• Lect. Dr. Karam Ali Younis	Forest Science
• Lect. Dr. Raghad Abdulrazzaq Jamal	Forest Pathology
• Prof. Dr. Muzahim Saeed Al-Bak	Forest Management (Emeritus Professor)
• Prof. Dr. Waleed Aboodi Qasir	Wood Science (Emeritus Professor)
• Prof. Dr. Anwar Nouri Mohammed	Fungal Plant Diseases (Emeritus Professor)

6. Credits, Grading and GPA

Credits

University of Mosul is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

- The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$CGPA = [(1st^{th} module score \times ECTS) + (2nd^{th} module score \times ECTS) + \dots] / 240$$

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOM1031	COMPUTER SKILLS1	47	28	3.00	B	

UOM1040	DEMOCRACY and HUMAN RIGHTS	32	18	2.00	B	
UOM1021	ENGLISH LANGUAGE1	32	18	2.00	B	
MAT1010	MATHEMATICS	63	112	7.00	S	
ACE1020	AGRICULTURAL PROFESSIONAL ETHICS	62	63	5.00	S	
END1030	ENGINEERING DRAWING	63	87	6.00	S	
AET1040	AGRICULTURAL ENGINEERING TECHNIQUES TRANSFER	63	62	5.00	C	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
UOM1011	ARABIC LANGUAGE 1	32	18	2.00	B	
BSS1050	BIOSAFETY and SECURITY	47	28	3.00	S	ACE1020
AGS1060	AGRICULTURAL STATISTICS	78	47	5.00	C	
BIO1070	BIODIVERSITY	63	62	5.00	C	
AGI1080	AGRICULTURAL INFORMATICS	63	62	5.00	C	
SUD1090	SUSTANIBLE DEVELOPMENT	62	63	5.00	C	
AMT1100	AGRICULTURAL MARKETING TECHNIQUES	32	93	5.00	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
UOM1012	ARABIC LANGUAGE2 2	32	18	2.00	B	UOM1011
UOM2050	CRIMES of the BATH REGIME in IRAQ	32	18	2.00	B	
IPM2110	INTEGRATED PEST MANAGEMENT	63	62	5.00	C	BSS1050
AEM2120	AGRICULTURAL ENGINEERING PROJECT MANAGEMENT	78	72	6.00	C	
DAE2160	DESIGN AND ANALYSIS of EXPERIMENTS	63	62	5.00	C	AGS1060

APT2140	AGRICULTURAL PRODUCTION TECHNOLOGIES	63	62	5.00	C	
FTP2150	FOOD TECHNOLOGIES and HEALTH AGRICULTURAL PRODUCTS	63	62	5.00	C	BSS1050

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
UOM2022	ENGLISH LANGUAGE2	32	18	2.00	B	UOM1021
UOM2032	COMPUTER 2	47	28	3.00	B	UOM1031
APT2130	AGRICULTURAL PRODUCTION MECHANIZATION TECHNIQUES	63	62	5.00	C	
DPF2170	DESIGN and PLANNING of AGRICULTURAL FACILITIES	63	62	5.00	C	END1030
BEI180	BENEFICIAL INSECTS	63	62	5.00	C	
SWS2190	SOIL and WATER SUITABILITY	63	62	5.00	C	APT2130
BIA2200	BIOCHEMICAL ANALYSIS	63	62	5.00	C	BSS1050

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
PLG3230	PLANT GENETICS	48	27	2.00	C	
FPS3240	FUNDAMENTALS of PLANE SURVEYING	63	12	3.00	S	SWS2190
FOE3500	FOREST ECONOMIC	48	52	4.00	C	
FOS3510	FOREST SYLICULTURE	63	62	5.00	C	APT2140
FOI3520	FOREST INVESTMENT	63	62	5.00	C	AEM2120
RES3250	REMOTE SENSING	63	62	5.00	C	SWS2190
FTT3540	FOREST TREES TAXONOMY	63	62	5.00	C	BIO1070

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
FOM3550	FOREST MENSURATION	63	62	5.00	C	FOI3520

FOP3560	FOREST PLANTING	63	62	5.00	C	FTT3540
WOS3570	WOOD SCIENCE	63	62	5.00	C	
FTP3580	FOREST TREE PHYSIOLOGY	63	62	5.00	C	
WAM3590	WATERSHED MANAGEMENT	63	62	5.00	C	
FON3600	FOREST NURSERIES	48	52	400	C	DPF2170
SEM3260	SEMINARS	17	08	1.00	C	FOI3520

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
MIT4270	MODERN IRRIGATION TECHNIQUES	63	12	3.00	C	
FOP4610	FOREST PLANNING	63	62	5.00	C	
FOM4620	FOREST MAINTENANCE	63	62	5.00	C	
WOI4630	WOOD INDUSTRIES	63	62	5.00	C	WOS3570
SIS4640	SILICULTURAL SYSTEMS	63	62	5.00	C	FOS3510
SEM4280	ENVIRONMENT SOIL METEOROLOGY	63	62	5.00	C	SWS2190
AEP4291	AGRICULTRUAL ENGINEERING PROJECT1	47	03	2.00	C	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
WOP4650	WOOD PRESERVATION	63	12	3.00	C	WOS3570
PTT4300	PLANTS TISSUE CULTURE TECHNIQUES	63	62	5.00	C	
FTB4660	FOREST TREE BREEDING	63	62	5.00	C	PLGE311
FOE4670	FOREST ENGINEERING	63	62	5.00	C	FOP4610
FOM4680	FOREST MANAGEMENT	63	62	5.00	C	FOS3510
SAT4310	SMART AGRICULTURAL TECHNIQUES	63	62	5.00	C	AGI1080
AEP4292	AGRICULTRUAL ENGINEERING PROJECT2	47	03	2.00	C	

8. **Contact**

Program Manager:

Sumod husain ali | Ph.D. in Forest science | Professor

Email: sumod_husain@uomosul.edu.iq

Mobile no.: +9647704477301

Program Coordinator:

Samer ameer hanna | Ph.D. in Forest science | lecturer

Email: samer_alshaby@uomosul.edu.iq

Mobile no.:+964 7701666218
