

# University of Mosul

## جامعة الموصل



*First Cycle – Bachelor's degree (B.Sc.) – Animal production*

بكالوريوس علوم زراعة - الإنتاج الحيواني



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### 1. Overview

This catalogue is about the courses (modules) given by the program of Agricultural sciences to gain the Bachelor of Animal Production sciences degree. The program delivers (xx) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

### 2. Undergraduate Courses 2023-2024

#### Module 1

Code	Course/Module Title	ECTS	Semester
UOM1031	COMPUTER	3.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	3	47	28
Description			
The "Computer Skills" module is designed to equip students with essential computing knowledge and practical skills needed for academic and professional success. It covers key areas such as basic computer operations, word processing, spreadsheet management, and presentation software. Students will also gain familiarity with internet navigation, email usage, and data management tools. The module introduces fundamental concepts in computer security, cloud computing, and the use of collaborative tools for teamwork. By the end of the course, students will be able to effectively use software applications to organize, analyze, and present information, while also understanding the ethical and secure use of technology in a modern digital environment			

#### Module 2

Code	Course/Module Title	ECTS	Semester
UOM1040	DEMOCRACY and HUMAN RIGHTS	2.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

2	0	32	18
Description			
<p>The "Democracy and Human Rights" module explores the fundamental principles and concepts underlying democratic governance and the protection of human rights. Students will study the evolution of democracy, different democratic systems, and the roles of institutions in promoting participation, transparency, and accountability. The course also addresses key human rights issues, including civil, political, social, and economic rights, as well as international frameworks that protect these rights. Through case studies and discussions, students will analyze the challenges facing democracy and human rights in different regions and contexts. By the end of the module, students will have a deeper understanding of the interconnection between democratic values and human rights, and the importance of safeguarding these principles in modern society</p>			

### Module 3

Code	Course/Module Title	ECTS	Semester
UOM1021	ENGLISH LANGUAGE1	2.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	32	18
Description			
<p>The "English Language" module is designed to enhance students' proficiency in English, focusing on the four essential language skills: listening, speaking, reading, and writing. It provides a comprehensive approach to language learning, covering grammar, vocabulary, pronunciation, and sentence structure. Through interactive activities, such as discussions, presentations, and written assignments, students will improve their ability to communicate effectively in academic, professional, and social contexts. The module also emphasizes comprehension and analysis of texts, both written and spoken, to develop critical thinking skills. By the end of the course, students will have gained confidence in using English in various settings and will be better prepared for further academic studies and global communication.</p>			

### Module 4

Code	Course/Module Title	ECTS	Semester
MAT1010	MATHEMATICS	7.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

2	2	63	112
<b>Description</b>			
<p>The "Mathematics" module provides students with a strong foundation in essential mathematical concepts and problem-solving techniques. Covering topics such as algebra, geometry, calculus, and statistics, the course emphasizes both theoretical understanding and practical application. Students will develop critical thinking and analytical skills, enabling them to tackle complex mathematical problems in various fields. Through exercises and real-world examples, the module aims to enhance logical reasoning and quantitative skills, preparing students for further studies and professional applications in science, engineering, economics, and more.</p>			

#### Module 5

Code	Course/Module Title	ECTS	Semester
ACE1020	AGRICULTURAL CARRER ETHICS	5.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	62	63
<b>Description</b>			
<p>The "Agricultural Professional Ethics" module introduces students to the ethical principles and responsibilities relevant to agricultural professionals. The course covers topics such as sustainability, environmental stewardship, tree welfare, and fair labor practices. Students will explore the ethical challenges faced in modern agriculture, including the impact of agricultural practices on ecosystems and society. Through case studies and discussions, the module encourages critical thinking about moral issues and promotes a commitment to ethical decision-making in agricultural practices. By the end of the course, students will understand the importance of ethics in fostering sustainable and responsible agricultural development.</p>			

#### Module 6

Code	Course/Module Title	ECTS	Semester
END1030	ENGINEERING DRAWING	6.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

1	3	63	87
<b>Description</b>			
<p>The "Engineering Drawing" module equips students with the fundamental skills of technical drawing, essential for all engineering disciplines. It covers basic principles of orthographic projection, isometric views, and sectional drawings. Students will learn how to interpret and create accurate engineering drawings, focusing on line work, dimensions, scaling, and geometric tolerances. The module also introduces the use of computer-aided design (CAD) software, enabling students to produce precise technical diagrams. By the end of the course, students will be proficient in visualizing and communicating design concepts, preparing them for advanced engineering tasks.</p>			

### Module 7

Code	Course/Module Title	ECTS	Semester
AET1040	AGRICULTURAL ENGINEERING TECHNIQUES TRANSFER	5.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
<b>Description</b>			
<p>The "Agricultural Engineering Techniques Transfer" module focuses on the application and dissemination of modern engineering solutions in agriculture. It covers the principles of technology transfer, including the adoption of advanced machinery, irrigation systems, and precision farming tools. Students will learn how to assess and implement engineering techniques that enhance agricultural productivity and sustainability. The module emphasizes communication skills for effectively transferring knowledge to farmers and agricultural stakeholders. By the end of the course, students will be prepared to bridge the gap between agricultural research and practical field applications, promoting innovation in the agricultural sector.</p>			

### Module 8

Code	Course/Module Title	ECTS	Semester
UOM1011	ARABIC LANGUAGE1	2.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

2	0	32	18
Description			
<p>The "Arabic Language" module is designed to develop students' proficiency in reading, writing, speaking, and listening in Arabic. It covers essential grammar, vocabulary, and sentence structure while emphasizing both classical and modern Arabic. Through various texts, writing exercises, and oral activities, students will enhance their communication skills and cultural understanding. The course also focuses on improving comprehension of complex texts and refining formal and informal writing styles. By the end of the module, students will have strengthened their ability to use Arabic effectively in academic, professional, and social contexts.</p>			

### Module 9

Code	Course/Module Title	ECTS	Semester
BSS1050	BIOSAFETY and SECURITY	3.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	2	47	28
Description			
<p>The "Biosafety and Security" module provides students with an understanding of the principles and practices necessary to ensure safety in biological research and biotechnology. It covers topics such as risk assessment, containment strategies, and the safe handling of biological materials. Students will explore the ethical and legal frameworks governing biosafety, as well as the potential threats of biological hazards and biosecurity risks. The module emphasizes the importance of implementing proper protocols to protect both public health and the environment. By the end of the course, students will be equipped with the knowledge to manage biosafety in laboratory and field settings.</p>			

### Module 10

Code	Course/Module Title	ECTS	Semester
AGS1060	AGRICULTURAL STATISTICS	5.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	47
Description			
<p>The "Agricultural Statistics" module introduces students to the statistical methods and tools used in agricultural research and data analysis. Topics covered include data collection, probability, hypothesis testing, regression analysis, and experimental design. Students will learn how to apply statistical techniques to solve real-world agricultural problems, such as crop yield analysis, soil quality assessment, and livestock management. The course emphasizes the interpretation of statistical results to inform decision-making in agricultural practices. By the end of the module, students will be able to analyze and interpret agricultural data, supporting evidence-based approaches in farming and research.</p>			

**Module 11**

Code	Course/Module Title	ECTS	Semester
BIO1070	BIODIVERSITY	5.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
<p>The "Biodiversity" module explores the variety of life forms on Earth and their ecological significance. Students will study the different levels of biodiversity, including genetic, species, and ecosystem diversity, and their roles in maintaining ecosystem health and resilience. The course covers key concepts such as habitat conservation, the impacts of human activities on biodiversity, and strategies for sustainable management. Through case studies and fieldwork, students will learn about the importance of preserving biodiversity for food security, environmental stability, and human well-being. By the end of the module, students will appreciate the complex interrelationships among species and the need for conservation efforts.</p>			

**Module 12**

Code	Course/Module Title	ECTS	Semester
AGI1080	AGRICULTURAL INFORMATICS	5.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	63	62
Description			
<p>The "Agricultural Informatics" module focuses on the integration of information technology and data management in the agricultural sector. Students will learn about the tools and techniques used to collect, analyze, and interpret agricultural data, including Geographic Information Systems (GIS), remote sensing, and data analytics. The course emphasizes the role of informatics in improving decision-making, enhancing productivity, and promoting sustainable agricultural practices. Through practical exercises and case studies, students will develop skills in managing agricultural information systems and utilizing technology for precision farming and resource management. By the end of the module, students will be equipped to leverage informatics in addressing contemporary agricultural challenges.</p>			

**Module 13**

Code	Course/Module Title	ECTS	Semester
SUD1090	SUSTAINABLE DEVELOPMENT	5.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

2	0	62	63
Description			
<p>The "Sustainable Development" module explores the principles and practices essential for achieving a balance between environmental, social, and economic sustainability. Students will study key concepts such as the United Nations Sustainable Development Goals (SDGs), resource management, and community engagement. The course examines the interconnections between human activities and environmental health, focusing on strategies to address challenges such as climate change, biodiversity loss, and poverty. Through case studies and project-based learning, students will develop critical thinking and problem-solving skills to promote sustainable practices in various sectors. By the end of the module, students will be prepared to contribute to sustainable development initiatives locally and globally.</p>			

#### Module 14

Code	Course/Module Title	ECTS	Semester
AMT1100S	AGRICULTURAL MARKETING TECHNIQUES	5.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	32	93
Description			
<p>The "Agricultural Marketing Techniques" module provides students with a comprehensive understanding of marketing principles specific to the agricultural sector. It covers key topics such as market analysis, consumer behavior, pricing strategies, and distribution channels for agricultural products. Students will learn effective techniques for promoting and selling crops, livestock, and other agricultural goods in domestic and international markets. The course emphasizes the importance of branding, quality assurance, and sustainable practices in marketing. Through case studies and practical exercises, students will develop skills to create effective marketing plans and strategies that enhance competitiveness and profitability in the agricultural industry.</p>			

#### Module 15

Code	Course/Module Title	ECTS	Semester
UOM1012	ARABIC LANGUAGE2	2.00	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)



2		32	18
<b>Description</b>			
<p>The "Arabic Language" module is designed to develop students' proficiency in reading, writing, speaking, and listening in Arabic. It covers essential grammar, vocabulary, and sentence structure while emphasizing both classical and modern Arabic. Through various texts, writing exercises, and oral activities, students will enhance their communication skills and cultural understanding. The course also focuses on improving comprehension of complex texts and refining formal and informal writing styles. By the end of the module, students will have strengthened their ability to use Arabic effectively in academic, professional, and social contexts.</p>			

#### Module 16

Code	Course/Module Title	ECTS	Semester
UOM2050	The CRIMES of the BATH REGIME in IRAQ	2.00	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	32	18
<b>Description</b>			
<p>The "Crimes of the Ba'ath Regime in Iraq" module examines the human rights abuses and atrocities committed during the rule of the Ba'ath Party. Students will explore key events such as the Anfal Campaign, chemical attacks, mass executions, and the suppression of political dissent. The module also delves into the legal, social, and historical context of the regime's actions, analyzing the impact on various ethnic and religious groups. By studying testimonies, legal documents, and historical accounts, students will gain a deeper understanding of the regime's legacy and its consequences for Iraq and the wider region.</p>			

#### Module 17

Code	Course/Module Title	ECTS	Semester
IPM2110	INTEGRATED PEST MANAGEMENT	5.00	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
<b>Description</b>			
<p>The "Integrated Pest Management" (IPM) module focuses on sustainable and environmentally friendly approaches to managing agricultural pests. Students will learn about the principles of IPM, which combines biological, cultural, mechanical, and chemical methods to control pests while minimizing harm to ecosystems. The course covers pest identification, monitoring techniques, and decision-making processes to implement effective pest control strategies. Emphasis is placed on reducing pesticide use</p>			

and promoting natural predators. By the end of the module, students will be equipped with the knowledge and skills to design and apply integrated pest management plans that enhance crop production and protect the environment.

#### Module 18

Code	Course/Module Title	ECTS	Semester
AEM2120	AGRICULTURAL ENGINEERING PROJECT MANAGEMENT	6	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	78	72
Description			
<p>The "Agricultural Engineering Project Management" module provides students with the skills and knowledge necessary to plan, execute, and manage engineering projects in the agricultural sector. Topics covered include project planning, resource allocation, budgeting, risk management, and the use of modern project management tools. The course emphasizes effective communication, leadership, and decision-making skills to ensure successful project outcomes. Students will learn how to manage various agricultural projects, such as irrigation systems, farm infrastructure, and machinery installation. By the end of the module, students will be capable of overseeing complex agricultural engineering projects from conception to completion.</p>			

#### Module 19

Code	Course/Module Title	ECTS	Semester
APT2130	AGRICULTURAL PRODUCTION MECHANIZATION TECHNIQUES	5.00	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
<p>The "Agricultural Production Mechanization Techniques" module focuses on the use of machinery and technology to enhance the efficiency and productivity of agricultural operations. Students will study various mechanization techniques, including the use of tractors, harvesters, irrigation systems, and planting equipment. The course covers the principles of machine operation, maintenance, and safety, along with the economic and environmental impacts of mechanization. Emphasis is placed on selecting appropriate machinery for different farming tasks to optimize production. By the end of the module, students will be able to apply modern mechanization techniques to improve agricultural processes and sustainability.</p>			

#### Module 20

Code	Course/Module Title	ECTS	Semester
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<b>APT2140</b>	<b>AGRICULTURAL PRODUCTION TECHNOLOGIES</b>	5.00	3
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	2	63	62
<b>Description</b>			
<p>The "Agricultural Production Technologies" module introduces students to the latest innovations and technologies used to enhance agricultural productivity and sustainability. Topics include precision farming, advanced irrigation systems, greenhouse technologies, and the use of biotechnology in crop and livestock production. Students will explore how these technologies optimize resource use, improve yields, and reduce environmental impacts. The course also covers the integration of digital tools like drones, sensors, and data analytics to monitor and manage agricultural processes. By the end of the module, students will be equipped with practical knowledge of cutting-edge technologies to improve efficiency in agricultural production.</p>			

#### Module 21

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>FTP2150</b>	<b>FOOD TECHNOLOGIES and HEALTH AGRICULTURAL PRODUCTS</b>	5.00	3
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	2	63	62
<b>Description</b>			
<p>The "Food Technologies and Health Agricultural Products" module focuses on the processing, preservation, and safety of agricultural products to ensure high nutritional value and quality. Students will learn about modern food technologies used in the production of healthy and safe food, including techniques like pasteurization, canning, drying, and packaging. The course also covers the impact of these technologies on the nutritional content of food, as well as regulations and standards for food safety. By the end of the module, students will understand how to apply advanced food technologies to produce health-focused agricultural products that meet consumer demands.</p>			

#### Module 22

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>UOM2022</b>	<b>ENGLISH LANGUAGE2</b>	2.00	4
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>

2	0	32	18
<b>Description</b>			
<p>The "English Language" module is designed to enhance students' proficiency in English, focusing on the four essential language skills: listening, speaking, reading, and writing. It provides a comprehensive approach to language learning, covering grammar, vocabulary, pronunciation, and sentence structure. Through interactive activities, such as discussions, presentations, and written assignments, students will improve their ability to communicate effectively in academic, professional, and social contexts. The module also emphasizes comprehension and analysis of texts, both written and spoken, to develop critical thinking skills. By the end of the course, students will have gained confidence in using English in various settings and will be better prepared for further academic studies and global communication.</p>			

### Module 23

Code	Course/Module Title	ECTS	Semester
UOM2032	COMPUTER SKILLS2	3.00	4
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	3	47	28
<b>Description</b>			
<p>The "Computer Skills" module is designed to equip students with essential computing knowledge and practical skills needed for academic and professional success. It covers key areas such as basic computer operations, word processing, spreadsheet management, and presentation software. Students will also gain familiarity with internet navigation, email usage, and data management tools. The module introduces fundamental concepts in computer security, cloud computing, and the use of collaborative tools for teamwork. By the end of the course, students will be able to effectively use software applications to organize, analyze, and present information, while also understanding the ethical and secure use of technology in a modern digital environment</p>			

### Module 24

Code	Course/Module Title	ECTS	Semester
DAE2160	DESIGN AND ANALYSIS of EXPERIMENTS	5.00	4
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
<b>Description</b>			
<p>The "Design and Analysis of Experiments" module introduces students to the principles and methodologies used in planning, conducting, and analyzing scientific experiments. The course covers key topics such as experimental design, randomization, replication, and the analysis of variance (ANOVA). Students will learn how to create experiments that yield valid, reliable results and how to</p>			

analyze data using statistical methods to draw meaningful conclusions. Emphasis is placed on practical applications in agricultural and biological research. By the end of the module, students will be able to design robust experiments and interpret experimental data for research and decision-making.

#### Module 25

Code	Course/Module Title	ECTS	Semester
DPF2170	DESIGN and PLANNING of AGRICULTURAL FACILITIES	5.00	4
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
<p>The "Design and Planning of Agricultural Facilities" module focuses on the principles of designing and developing efficient and sustainable infrastructure for agricultural operations. Students will learn how to plan and design key facilities such as storage buildings, greenhouses, irrigation systems, livestock housing, and processing units. The course emphasizes factors like cost-efficiency, environmental impact, and functionality in agricultural production. Topics also include site selection, layout optimization, and the use of modern materials and technologies. By the end of the module, students will be equipped to plan and design agricultural facilities that enhance productivity and sustainability.</p>			

#### Module 26

Code	Course/Module Title	ECTS	Semester
BEI2180	BENEFICAL INSECTS	5.00	4
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
<p>The "Design and Apiculture Technologies" module focuses on the principles and technologies involved in modern beekeeping (apiculture). Students will explore the design of efficient beekeeping systems, including hive construction, site selection, and the use of modern tools for honey production and bee health management. The course covers topics such as bee biology, disease control, pollination, and sustainable practices in apiculture. Emphasis is placed on innovations that improve productivity and the environmental benefits of beekeeping. By the end of the module, students will have practical knowledge to apply advanced technologies in the design and management of apiculture systems.</p>			

#### M

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Code	Course/Module Title	ECTS	Semester
BIA2200	BIOCHEMICAL ANALYSIS	5.00	4

Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
<p>The "Design and Biochemical Analysis" module introduces students to the principles and techniques used in the biochemical analysis of agricultural products and processes. The course covers experimental design, sample preparation, and the application of various analytical methods, including chromatography, spectroscopy, and enzymatic assays. Students will learn to assess the composition and quality of food, soil, and plant materials through biochemical analysis. Emphasis is placed on interpreting results and understanding their implications for agricultural practices and food safety. By the end of the module, students will be equipped to design and conduct experiments that enhance biochemical understanding in agricultural contexts.</p>			

#### Module 28

Code	Course/Module Title	ECTS	Semester
AWE2210	AGRICULTURAL WASTE TREATMENT ENGINEERING	5.00	4
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>This field of study will enrich students' research skills through the application of scientific knowledge and engineering technology related to the efficient management of agricultural waste. Research will focus on the aspect of engineering knowledge to minimise the adverse impact of agricultural wastes on the environment, groundwater and public health, and to make use of the agricultural waste as by-products, as raw materials for new products, or as bio-sources of energy production. The main aim is to achieve integrated local recycling and reuse of agricultural waste, i.e. for environmental protection, energy development, fertiliser production, and water saving. It is hoped that the outcome of this research will bring about economic and social benefits as well as environmentally friendly technology and systems. This area of research also covers wastewater treatment and disposal, water pollution control, water recycling technology, water quality, air quality control, and solid waste management.</p>			

#### Module 29

Code	Course/Module Title	ECTS	Semester
ANG3210	ANIMAL GENETIC	2.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	48	2
Description			

Gain ability and knowledge on genetics of farm animals in order to make use of economically important traits in domestic livestock species. Introduction to genetics of farm animals, Quantitative characters and genetics, Population genetics, Genetic defects in farm animals, Use of molecular genetics in farm animals

### Module 30

Code	Course/Module Title	ECTS	Semester
ANP3220	ANIMAL PHYSIOLOGY	3.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	12
Description			
<p>Animal Physiology entails the anatomy, histology, and endocrine functioning of the physiological processes of livestock under specific conditions. This also includes the possible manipulation of the reproductive processes by means of accelerated breeding techniques for more efficient livestock and poultry production. The discipline of Animal Physiology includes the physiological functioning of ruminant or monogastric farm animals, including the physical and biochemical factors needed for optimal production and reproduction.</p> <p>The research themes in this group include the possible manipulation of the reproduction processes using accelerated reproduction techniques to increase reproductive performance. These research themes include the use of synchronisation, artificial insemination, super ovulation, embryo transfer, and the use of growth promoters. Currently the focus is on the reproductive physiology of cattle, sheep, goats, pigs, and poultry.</p> <p>There are postgraduate students from local and foreign universities (e.g. Mozambique, Namibia, Lesotho, Cameroon, Tanzania, and Ethiopia) within the Animal Physiology group and several members of this group serve on editorial boards of both national and international scientific journals.</p>			

### Module 31

Code	Course/Module Title	ECTS	Semester
FAH3500	FARM ANIMALS DISEASES and HYGEINE	5.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	1	63	62
Description			
<p>Type the basis of national and company-wide animal shelter, hygiene, health and diseases that contribute to the basic knowledge about the hardware is the winner. Gets the basic information about</p>			

animal health and disease and hygiene of the shelters in the basis of national and companywide. The factors that cause diseases that affects the efficiency of livestock enterprises, hygiene practices, regulations related with diseases, national and international disease organizations, major animal diseases.

### Module 32

Code	Course/Module Title	ECTS	Semester
ANN3510	ANIMAL NUTRITION	5.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
		63	62
Description			
<p>Animal nutrition entails the study of the composition and characteristics of the material consumed by the animal, the manner in which this material is metabolized (converted, utilized, and excreted) in the digestive tract and body cells of monogastric animals (pigs, broilers, layers), ruminants (sheep, cattle, goats), and lower digestive tract fermenters (horses, ostriches). The nutrient requirements of different species animals for various production functions are also addressed. Finally, this information is integrated in an economically feasible and practical system of animal nutrition to ensure that the optimal genetic production potential of animals is achieved.</p>			

### Module 33

Code	Course/Module Title	ECTS	Semester
ANB3520	ANIMAL BIOTECHNOLOGY	5.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>To give Information about the use of biotechnology in the field of animal science to give information about plasmids, vectors, silage and probiotics.</p>			

### Module 34

Code	Course/Module Title	ECTS	Semester
FIT3530	FISH TECHNOLOGY	5.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62



Description
Information will be given about the economic and sustainable production of freshwater and marine fish, which are widely grown in Iraq and the world. Information will be given about fish production, ecological demands and economic production of freshwater and marine fish.

### Module 35

Code	Course/Module Title	ECTS	Semester
AB3540	ANIMAL BREEDING TECHNIQUES	5.00	5
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
Animal breeding is a branch of animal science that addresses the genetic evaluation of livestock. The scientific theory of animal breeding incorporates principles of population genetics, quantitative genetics, statistics, biology, and recently molecular genomics. Practical animal breeding is the application of these principles to improve the efficiency of production in farm animals. At the UFS, animal breeding is one of the three disciplines of Animal Science. The primary focus of this group is the genetic evaluation of domestic livestock and several wildlife species using state-of-the-art mixed model methodology and genomic information to identify superior animals for selection purposes. The integration of phenotypic and genomic information for the prediction of more accurate breeding values form the main thrust of the teaching, research, and extension programmers of this group.			

### Module 36

Code	Course/Module Title	ECTS	Semester
AQE3550	AQUACULTURE ENGINEERING	4.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	48	52
Description			
Information will be given about the economic and sustainable production of freshwater and marine fish, which are widely grown in Iraq and the world. Information will be given about fish production, ecological demands and economic production of freshwater and marine fish.			

### Module 37

Code	Course/Module Title	ECTS	Semester
PB3560	POULTRY BREEDING TECHNIQUES	5.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
To ensure that they have all kinds of information about poultry. Course Content Poultry breeding, breeding, care, feeding, poultry house conditions, hatching characteristics			

#### Module 38

Code	Course/Module Title	ECTS	Semester
RTI3570	REPRODUCTIVE TECHNOLOGIES and ARTIFICIAL INSEMINATION	5.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
Reproduction is the basis of all kinds of productivity obtained from farm animals. Therefore, ensuring the sustainability of animal production and providing an economical production requires good reproductive knowledge. The main purpose of this lesson is to explain the importance of reproduction in animal production and its effect on production. Introduction to reproduction in terms of animal production and the importance of reproduction, male and female reproductive organs, effective hormones in reproduction, general reproductive terms and functions, biotechnological applications in reproduction.			

#### Module 39

Code	Course/Module Title	ECTS	Semester
PMT3580	POULTRY MANAGEMENT TECHNOLOGY	5.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
The basic knowledge of Technical information on egg production, egg quality, nutritional value and marketing tips convenience methods for the examination of the internal and external issues. World and Iraq Egg Production, Turkey Egg Production Enterprises and Structures, Chemical and Physical Structure			

of egg, External Quality Characteristics and Factors Affecting the egg, Internal Quality Characteristics and Factors Affecting the egg, Egg Quality Measurement Equipment, egg inheritance, studies of egg yield enhancement, Environmental Factors Affecting Yield of eggs, Technological Characteristics of the egg, Egg Products, Egg Storage, Evaluation and records of egg production.

#### Module 40

Code	Course/Module Title	ECTS	Semester
PON3590	POULTRY NUTRITION	5.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>Considering the market conditions for successful animal production. To give detailed information about feed production and feed technology Roughage and concentrate feed sources and technological peculiarities, nutrients and ant nutrient contents of feed stuff, feed technology, feed reserve or conservation and compound feed industry. The place and problems of compound feed in Iraq.</p>			

#### Module 41

Code	Course/Module Title	ECTS	Semester
ANM3600	ANIMAL MANAGEMENT TECCHNOLOGY	5.00	6
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>Using the most appropriate techniques for raising farm animals which learn the methods of having a yield quantity and quality. Knows the quantity and the quality of the yield by using the most appropriate techniques for raising farm animals Zoo technical subject and the meaning of the agricultural economy of the country and the benefits of animal husbandry, production systems, Domestication, Type and race, Hibridasyon, reproduction of farm animals, animal breeding, cattle farming, sheep farming, goat rearing, poultry breeding, animal nutrition, practical training jobs.</p>			

#### Module 42

Code	Course/Module Title	ECTS	Semester
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<b>SEM3260</b>	<b>SEMINARS</b>	1.00	6
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
		17	8
<b>Description</b>			
<p>The "Seminars" module is designed to enhance students' critical thinking, research, and presentation skills through a series of interactive discussions and presentations on contemporary topics in forestry and environmental science. Students will engage with faculty, industry experts, and peers to explore current research trends, challenges, and innovations within the field. The module emphasizes the importance of effective communication and the ability to articulate ideas clearly and confidently. Participants will present their findings from individual research projects and receive constructive feedback, fostering a collaborative learning environment. By the end of the module, students will be well-prepared for professional discussions and academic discourse in their careers.</p>			

#### Module 43

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>APM4330</b>	<b>ANIMAL PRODUCTION MECHANIZATION</b>	3.00	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
	2	63	12
<b>Description</b>			
<p>Aim of this lecture, to learn the structural and functional properties of the machinery and equipment used mechanization of animal husbandry (Hay making, feed preparation, milking, manure handling and storage, feeding, watering, poultry housing). The machinery and equipment used hay making (Mowers, rakes, hay conditioners, balers, bale picking and transporting, forage harvesters, forage blowers, silo unloaders), structural and functional properties of the feed preparation systems used feed plants (Silos, weighers, comminution machines, mixers, pelleting and delivering), manure scrapers, milking machines and milking parlor, feeding and watering systems, incubators for hens.</p>			

#### Module 44

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
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<b>SGP4610</b>	<b>SHEEP and GOAT PRODUCTION</b>	5.00	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
	2	63	62
<b>Description</b>			
<p>Sheep and goat breeds, sheep and goat production practices, raising dairy sheep and goat, raising meat type sheep and goat. Gains knowledge on breeding sheep and goats. Gains knowledge about breeding, breeding and feeding of sheep and goats. Knows domestic sheep and goat breeds. Knows the phenotypic and genotypic characteristics of these breeds. It will have an idea about which regions it can be grown. learns in detail about preparation for birth in sheep and goats and practices at lambing and kidding.</p>			

#### Module 45

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>AVP4620</b>	<b>AVIAN PHYSIOLOGY</b>	5	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
	2	63	62
<b>Description</b>			
<p>To teach digestive systems of monogastrics and ruminants, to give knowledge's of nutrients and metabolisms, to teach mineral, vitamins and hormones, to teach blood physiology Digestive systems of monogastric, proteins and metabolisms, lipids and metabolisms, carbohydrates and metabolisms, mineral and vitamins, hormones, physiology of blood</p>			

#### Module 46

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>FFT4630</b>	<b>FEED and FEEDING TECHNOLOGY</b>	5.00	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
	2	63	62
<b>Description</b>			
<p>Digestive systems in livestock, forage and grains, concentrate production and to know digestive systems in ruminants.</p>			

#### Module 47

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
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<b>ANB4640</b>	<b>ANIMAL BEHAVIOR</b>	5.00	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
		63	62
<b>Description</b>			
<p>Helping the undergraduate students in Department of Animal Science to contribute in the efficiency of enterprises by getting information about animal behavior, using the information about their manipulations and improving the theoretical and practical knowledge and awareness of animal husbandry. concepts and knowledge of animal behavior, and their relationship with the animal interaction, manipulations using the information about the theoretical and practical knowledge and awareness of animal husbandry practices and improving the efficiency of enterprises to contribute to the profit</p>			

#### Module 48

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
<b>MPT4650</b>	<b>MEAT PRDUCTION TECHNOLOGY</b>	5.00	7
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
	2	63	62
<b>Description</b>			
<p>The undergraduate students of the Department of Animal Science learn dairy cattle breeding in cattle breeding, existing breeding systems, cattle barns, cattle breeds, external structure characteristics and culture and local cattle breeds and the factors affecting milk production, milk production, yield and quantity. By using the information about the breeding business in today's breeding systems, it enables students to be applied in cattle breeding enterprises, which have an important place in the future of agriculture in Iraq. Practical breeding by using existing cattle breeding systems, cattle barns, cattle breeds, external structure characteristics and culture and domestic cattle breeds and factors affecting milk production, milk quality, milk yield and quantity. contribute to production.</p>			

#### Module 49

Code	Course/Module Title	ECTS	Semester
AGP4290	AGRICULTURAL ENGINEERING PROJECT1	2.00	7
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	47	3
Description			
<p>The "Agricultural Engineering Project" module provides students with hands-on experience in applying engineering principles to solve real-world agricultural problems. Throughout the course, students will work on individual or group projects that focus on designing, developing, and implementing innovative solutions in areas such as irrigation systems, machinery design, and sustainable farming practices. Emphasis will be placed on project planning, resource management, and technical communication. Students will also engage in critical analysis and evaluation of their designs through feedback and peer review. By the end of the module, participants will gain valuable skills in project management and practical engineering applications within the agricultural sector.</p>			

#### Module 50

Code	Course/Module Title	ECTS	Semester
AMG4660	ANIMAL MOLECULAR GENETIC	3.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	12
Description			
<p>To teach the structure and functioning of genes and different gene control mechanisms in different living groups. Structure and mechanism of genetic material, from genes to proteins, gene mutations, mutation repair mechanisms, viruses, regulation of gene expression</p>			

#### Module 51

Code	Course/Module Title	ECTS	Semester
MES4670	MEAT SCIENCE	5	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>Meatology: It is the science that specializes in the study of muscles and other tissues of animals that are</p>			

used as meat. This includes studying the characteristics of muscles and tissues and their properties, preserving, cooking, manufacturing and controlling them. Meat science can also include the steps preceding these processes, which begin in the animal field, which is producing a meat animal and preparing it for slaughter because the methods of production and management or treatment of the animal before the slaughter process have major effects on the quantity and quality. Meat produced from those animals. Meat science also includes the marketing of meat and its products, since meat and its products. They are rapidly perishable materials. Controlling the methods of preserving and transporting these products and delivering them to the consumer is a precise process that requires knowledge of the properties of meat and the appropriate conditions under which it should be preserved and transported for the purpose of preserving the qualities of meat products in terms of nutritional, nutritional and gustatory aspects.

#### Module 52

Code	Course/Module Title	ECTS	Semester
DAP4680	DAIRY CATTLE PRODUCTION	5.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>The undergraduate students of the Department of Animal Science learn dairy cattle breeding in cattle breeding, existing breeding systems, cattle barns, cattle breeds, external structure characteristics and culture and local cattle breeds and the factors affecting milk production, milk production, yield and quantity. By using the information about the breeding business in today's breeding systems, it enables students to be applied in cattle breeding enterprises, which have an important place in the future of agriculture in Turkey. Practical breeding by using existing cattle breeding systems, cattle barns, cattle breeds, external structure characteristics and culture and domestic cattle breeds and factors affecting milk production, milk quality, milk yield and quantity. contribute to production.</p>			

#### Module 53

Code	Course/Module Title	ECTS	Semester
WP4690	WOOL PRODUCTION TECHNOLOGY	5.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			



Wool, in the wide sense of the term, covers all animal origin fibers apt to be processed by the textile industry. Besides sheep wool, we are talking here about the wool of the angora goats, of cashmere rabbits hair, especially the angora and the fox varieties, about camel hair and alpaca wool, and such like. In the strict sense of the term, wool is the follicle production of sheep, apt to be processed by the textile industry, excluding non-textile hair, as growing on the animal's head or legs.

#### Module 54

Code	Course/Module Title	ECTS	Semester
PP4700	POULTRY PRODUCTS TECHNOLOGY	5.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>They will be able to have technical knowledge about chicken meat production, basic information about the nutritional value of chicken meat and marketing methods. Chicken meat production, factors affecting chicken meat quality, processes carried out in the slaughterhouse, suitable poultry conditions, alternative poultry meat production.</p>			

#### Module 55

Code	Course/Module Title	ECTS	Semester
SAP4710	SUSTAINABLE ANIMAL PRODUCTION	5.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	63	62
Description			
<p>Definition and scope of sustainability; supply and demand of livestock products; traditional production techniques; productivity in livestock production technical and scientific developments in livestock production; environmental concern; organic production; ecologically sound production; optimum resource use; production systems; zoonotic and parasitic disease concern; animal protein waste; economical eating habits.</p>			

#### Module 56

Code	Course/Module Title	ECTS	Semester
AEP4292	AGRICULTURAL ENGINEERING PROJECT2	2.00	8
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	2	47	3
Description			
Making a project to invest in livestock. In this course, the subjects of preparing feasibility and drawing projects in livestock investments will be explained.			

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