Form: Study Plan- Bachelors		
	Form Number	EXC-01-03-02A
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	Number of Pages	08

1.	School	Agriculture
2.	Department	Agricultural Economics and Agribusiness Management Dept.
3.	Program title (Arabic)	بكالوريوس الاقتصاد الزراعي وإدارة الأعمال الزراعية
4.	Program title (English)	B.Sc. in Agricultural Economics and Agribusiness Management

5. Components of Curriculum:

The curriculum for the bachelor's degree in Agricultural Economics and Agribusiness Management consists of (138) credit hours distributed as follows

Number	**Type of requirement**	**Type of learning (face-to-face | blended | online)**	**credit hours**
First	University Requirements	face-to-face | blended | online	27
Second	Faculty Requirements	face-to-face | blended	24
Third	Department Requirements	face-to-face | blended | online	87
Total			**138**

6. Numbering System:

A- Department number

Department	**Number**
Plant Production Technology	1
Animal Production	2
Nutrition and Food Technology	3
Land, Water and Environment	4
Agricultural Economics and Agribusiness Management	5
Plant Protection	6

B- Course number

Domain title	**Domain number**	**Domain title**	**Domain number**
General	0	Policy and Development	4
Economic Theory	1	Quantitative Analysis	5
Agribusiness	2	Extension and Rural Development	6
Marketing and Agricultural Trade	3	Training, Research and Seminars	9

C- Course number consists of 7 digits Example: Principles of Agricultural Economics (0605101

Serial number		Level	Department		School	
0	**1**	**1**	**0**	**5**	**0**	**6**

First: University Requirements (27) credit hrs::

a- Compulsory Requirements: 18 Credit Hours

No.	**Course Title**	**Course No.**	**Credit Hours**	**Pre-requisites**	**Type of learning**
1	Military Sciences	2220100	3	-	online
2	English Language (Level 3)	3202003	3	3202002	face-to-face
3	National Culture	3400100	3	-	online
4	Ethics and Social Responsibility	3420100	3	-	blended

5	Entrepreneurship, Innovation and Leadership	3420101	3	-	blended
6	Communication Skills and Soft Skills in English	3420103	3	3202003	blended

b- Electives: 9 Credit Hours:

(9) credit hours to be chosen from the first, second and third groups mentioned below. The student has to choose one course from each of the groups.

Electives: (First Group)					
No.	**Course Title**	**Course No.**	**Credit Hours**	**Pre-requisites**	**Type of learning**
1	Environmental Culture and Development	0310102	3	-	blended
2	Islamic Culture	0400102	3	-	blended
3	Health Culture	0720100	3	-	blended
4	Legal Culture	1000102	3	-	face-to-face
5	Physical Fitness Culture	1100100	3	-	blended
6	Introduction to Philosophy and Critical Thinking	3400103	3	-	online
7	Tourism Culture	3400111	3	-	blended
Electives: (Second Group)					
No.	**Course Title**	**Course No.**	**Credit Hours**	**Pre-requisites**	**Type of learning**
1	Islam and Contemporary Issues	0400101	3	-	blended
2	Social Media	1900101	3	-	blended
3	Appreciation of Arts	2000100	3	-	blended
4	Foreign Language	2200103	3	-	blended
5	Arab-Islamic Civilization	2300101	3	-	blended
6	Jordan: History and Civilization	2300102	3	-	blended
7	Special Subject	3400106	3	-	blended
8	Great Books	3400107	3	-	blended
9	Jerusalem	3400108	3	-	blended
Electives: (Third Group)					
No.	**Course Title**	**Course No.**	**Credit Hours**	**Pre-requisites**	**Type of learning**
1	Special Topic in Digital Skills	1900104	3	1900103	blended

Second: General mandatory university requirements

All students admitted to the university must apply for a degree examination in Arabic and English and the computer is prepared or approved by the university to determine their level. Based on the

results of the examinations, either the student will study one or more of the requirements of the preparatory program.

(0 - 15 Credit Hours) not included as credit hours

15 Credit Hours				
No.	**Course Title**	**Course No.**	**Credit Hours**	**Pre-requisites**
1	Community Service	0600150	0	-
2	Computer Skills Placement Test	1902098	0	-
3	Basics of Computing	1932099	3	-
4	Arabic Language (Level 1)	3201001	3	-
5	Arabic Language (Level 2)	3201002	3	3201001
6	English Language (Level 1)	3202001	3	-
7	English Language (Level 2)	3202002	3	3202001
8	Arabic Placement Test	3211098	0	-
9	English Placement Test	3212098	0	-

Second: School courses: distributed as follows:

A. Obligatory school courses: (24) credit hours
B. Elective school courses: (0) credit hours

A. Obligatory school courses: (24) credit hours:

Course Number	**Course Title**	**Type of learning**	**Contact Hours**		**Credit Hours**	**Pre-requisite**
			Theoretical	**Practical**		
0301101	Calculus (1)	face-to-face	3	-	3	-
0333106	General Chemistry for Life Sciences	face-to-face	3	-	3	-
0334103	Biology for life Sciences	face-to-face	3	-	3	-
0304111	Practical General Biology	face-to-face	-	3	1	0334103 or Sim
0333109	Experimental General Chemistry	face-to-face	-	3	1	or0333106 Sim
0342103	General Physics for Life Sciences	face-to-face	3	-	3	-

0332113	Experimental General physics for Life Sciences	face-to-face	-	3	1	0342103 or Sim
0605151	Biostatistics and Data Analysis	face-to-face	3	-	3	1900103
0661101	Principles of Plant Production	face-to-face	3	-	3	0334103
1900103	Modern Digital Skills	blended	3	-	3	1932099

B. Elective school courses: (0) credit hours:

Third: Specialty courses: (87) credit hours distributed as follows:

A. Obligatory specialty courses: (75) credit hours:

Course Number	Course Title	Type of learning	Contact Hours		Credit Hours	Pre-requisite
			Theoretical	Practical		
0602101	Principles of Animal Production	face-to-face	3	-	3	0334103
0605101	Principles of Agricultural Economics	face-to-face	3	-	3	0301101
0605215	Macroeconomics for Agriculture	face-to-face	3	-	3	0605101
0605216	Agricultural Price Analysis	face-to-face	3	-	3	0605101
0635221	Agribusiness and farm Management	face-to-face	3	-	3	0605101
0635230	Agribusiness Marketing	blended	3	-	3	0605101
0605260	Agricultural Extension	online	3	-	3	-
0635310	Agricultural Production Economics	face-to-face	3	-	3	0605101
0635325	Agribusiness Finance and Accounting	face-to-face	3	-	3	0635221
0635328	Agribusiness Projects Analysis	face-to-face	3	-	3	0635221
0635340	Agricultural Policies and Development	face-to-face	3	-	3	0605215
0635360	Rural Development	blended	3	-	3	0605260
0605428	Agribusiness Risk Management	face-to-face	3	-	3	0635221
0645491	Computer applications and selected topics in agricultural economics	face-to-face	1	-	1	-

605446	Natural resources and Environmental Economics	face-to-face	3	-	3	0635328
0635450	Econometrics	face-to-face	3	-	3	0605151
0605455	Agricultural Economic Analysis	face-to-face	3	-	3	0605216
0605458	Operational Research in Agriculture	face-to-face	3	-	3	0635221
0645441	Food Security	face-to-face	3	-	3	-
0606101	Principles of Plant Protection	online	3	-	3	0334103
0635492	Methods of scientific research	face-to-face	2	-	2	*
0655492	Graduation project in agricultural economics and Agribusiness Management	face-to-face	-	4	1	*
Practical Training and Employability Readiness Program (14) credit hours						
0601497	Field Practices in Horticulture and Crop Science	face-to-face	-	4	1	+* 0661101
0602497	Field Practices in Animal Production	face-to-face	-	4	1	+* 0602101
0665493	Field Practices in crop budgets	face-to-face	-	8	2	*
0665494	Field Practices in Agribusiness Projects Analysis	face-to-face	-	8	2	*
0665495	Field Practices in Agribusiness Finance and Accounting	face-to-face	-	8	2	*
0662490	Fundamentals of Employment Readiness (Interpersonal Skills and Professional Development-General)	face-to-face	3	-	3	*
0615491	Employment Readiness - Specialized Skills in Agricultural Economics and Agribusiness	face-to-face	3	-	3	*

(*) To pass successfully 110 credit hours with department approval.

B. Elective specialty courses: (12) credit hours: (3 credit hours from each group):

Course Number	Course Title	Type of learning	Contact Hours		Credit Hours	Pre-requisite
			Theoretical	Practical		
Group 1						
0635327	Agribusiness Cooperatives	face-to-face	3	-	3	0635221

0605465	Communication Methods and Technology Transfer	face-to-face	3	-	3	0605260
0645433	International Economic	face-to-face	3	-	3	0605215
0605322	Innovation and Entrepreneurship for agribusinesses	face-to-face	3	-	3	-
Group 2						
0641431	Farming Systems	face-to-face	3	-	3	0661101
0644348	Soilless Culture	face-to-face	3	-	3	-
0601212	Fundamentals of Fruit Trees Production	face-to-face	3	-	3	0661101
0601222	Fundamentals of Vegetable Crops Production	face-to-face	3	-	3	0661101
0604104	Principles of Soil and Irrigation	face-to-face	3	-	3	0342103
Group 3						
0602212	Poultry Production	face-to-face	2	2	3	0602101
0602323	Fish Production	face-to-face	3	-	3	0602101
0603101	Principles of Food and Nutrition	face-to-face	3	-	3	0334103
0602215	Dairy Cattle Production	face-to-face	3	-	3	0602101
Group 4						
0644352	Climate Change	face-to-face	3	-	3	-
0634230	Agrometeorology	face-to-face	3	-	3	-
0634333	Geographic Information Systems	face-to-face	2	3	3	1900103
0634446	Environmental Impact Assessment	face-to-face	3	-	3	-
0604334	Green skills and sustainability	face-to-face	3	-	3	-

Fourth: Courses offered by other faculties/schools and departments ……

Course Number	Course Title	Type of learning	Contact Hours		Credit Hours	Pre-requisite
			Theoretical	Practical		
0301101	Calculus (1)	face-to-face	3	-	3	-
0333106	General chemistry for life sciences students	face-to-face	3	-	3	-
0334103	Biology for life sciences	face-to-face	3	-	3	-
0304111	Practical General Biology	face-to-face	-	3	1	or0334103 Sim
0333109	Experimental general chemistry	face-to-face	-	3	1	or 0333106 Sim
0342103	General physics for life sciences	face-to-face	3	-	3	-
0332113	Experimental physics for life sciences	face-to-face	-	3	1	or0342103 Sim
0661101	Principles of plant production	face-to-face	3	-	3	0334103
0641431	Farming Systems	face-to-face	3		3	0661101
0606101	Principles of Plant Protection	online	3	-	3	0334103
0644348	Soilless Culture	face-to-face	3		3	-
0604104	Principles of Soil Science and Irrigation	face-to-face	3	-	3	0342103
0601451	Smart Farming	face-to-face	3		3	0601250
0602101	Principles of Animal Production	face-to-face	3	-	3	0334103
0602212	Poultry Production	face-to-face	2	2	3	0602101
0602323	Fish Production	face-to-face	3	-	3	0602101
0603101	Principles of Human Nutrition and Food Science	face-to-face	3	-	3	0334103
0601212	Fundamentals of Fruit Trees Production	face-to-face	3	-	3	0661101
0601222	Fundamentals of Vegetable Crops Production	face-to-face	3	-	3	0661101

0644352	Climate Change	face-to-face	3	-	3	-
0634230	Agrometeorology	face-to-face	3	-	3	-
0602215	Dairy Cows Production	face-to-face	3	-	3	0602101
0634333	Geographic Information Systems	face-to-face	2	3	3	1900103
0604446	Environmental Impact Assessment	face-to-face	3	-	3	-

Fifth: Advisory Study Plan

(First) Year

(first) Semester				**(second) Semester**			
Course Number	**Course Title**		**Credit Hours**	**Course Number**	**Course Title**		**Credit Hours**
0301101	Calculus (1)	face-to-face	3	0342103	General Physics for Life Sciences	face-to-face	3
0333106	General chemistry for life sciences	face-to-face	3	0303109	Experimental General Chemistry	face-to-face	1
0334103	Biology for life sciences	face-to-face	3	0605101	Principles of Agricultural Economics	face-to-face	3
0304111	Practical General Biology	face-to-face	1	0605151	Biostatistics and Data Analysis	face-to-face	3
-	Elective University		3	1900103	Modern Digital Skills	blended	3
				0332113	Experimental physics for life sciences	face-to-face	1
				-	Elective University		3
Total			**13**	**Total**			**17**
(Summer) Semester				0661101	Principles of Plant Production		**3**
Total Summer Semester			**3**	Total for first year			**33**

(second) Year

(first) Semester				**(second) Semester**			
Course Number	**Course Title**		**Credit Hours**	**Course Number**	**Course Title**		**Credit Hours**
0635221	Agribusiness and farm Management	face-to-face	3	0605215	Macroeconomics for Agriculture	face-to-face	3
0635230	Agribusiness Marketing	blended	3	0605216	Agricultural Price Analysis	face-to-face	3
-	Group (1) elective speciality course		3	0602101	Principles of Animal Production	face-to-face	3
	Elective University		3	-	Group (3) elective speciality course		3
-	Group (2) elective speciality course		3	0605260	Agricultural Extension	online	3
				0606101	Principles of Plant	online	

					Protection		
Total		**15**		**Total**		**18**	
(Summer) Semester					Elective University	**3**	
					Elective University	**3**	
Total Summer Semester		**6**		**Total for first year**		**39**	

Third Year

	(first) Semester			**(second) Semester**			
Course Number	**Course Title**		**Credit Hours**	**Course Number**	**Course Title**		**Credit Hours**
-	Elective University		3	0635340	Agricultural Policies and Development	face-to-face	3
0635310	Agricultural Production Economics	face-to-face	3	0635360	Rural Development	blended	3
0635325	Agribusiness Finance and Accounting	face-to-face	3	0635441	Food Security	face-to-face	3
0635328	Agribusiness Projects Analysis	face-to-face	3	-	Elective University		3
	Group (4) elective speciality course		3	0635450	Econometrics	face-to-face	3
Total		**15**		**Total**			**15**
(Summer) Semester				-	Elective University		3
				-	Elective University		3
Total Summer Semester		**6**		**Total for first year**			**36**

Fourth Year

(first) Semester Practical Training and Employability Readiness Program)				**(second) Semester**			
Course Number	**Course Title**		**Credit Hours**	**Course Number**	**Course Title**		**Credit Hours**
0601497	Field Practices in Plant Production	face-to-face	1	0605428	Agribusiness Risk Management	face-to-face	3
0602497	Field Practices in Animal Production	face-to-face	1	0605446	Natural resources and Environmental Economics	face-to-face	3
0665493	Field Practices in crop budgets	face-to-face	2	0605455	Agricultural Economic Analysis	face-to-face	3
0665494	Field Practices in Agribusiness Projects	face-to-face	2	0605458	Operational Research in Agriculture	face-to-face	3

	Analysis						
0665495	Field Practices in Agribusiness Finance and Accounting	face-to-face	2	0635492	Methods of scientific research	face-to-face	2
0662490	Fundamentals of Employment Readiness (Interpersonal Skills and Professional Development-General)	face-to-face	**3**	0645491	Computer applications and selected topics in agricultural economics	face-to-face	1
0615491	Employment Readiness - Specialized Skills in Agricultural Economics and Agricultural Business Management	face-to-face	**3**	0655492	Graduation project in agricultural economics and Agribusiness Management	face-to-face	1
Total			**14**	**Total**			**16**
(Summer) Semester							
Total Summer Semester				**Total for first year**			**30**

Sixth: Course Description

0301101	**Calculus (1)**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
Functions: domain, operations on functions, graphs of functions; trigonometric functions; limits: meaning of a limit, computational techniques, limits at infinity, infinite limits; continuity; limits and continuity of trigonometric functions; the derivative: techniques of differentiation, derivatives of trigonometric functions; the chain rule; implicit differentiation; differentials; Roll's Theorem; the mean value theorem; the extended mean value theorem; L'Hopital's rule; increasing and decreasing functions; concavity; maximum and minimum values of a function; graphs of functions including rational functions (asymptotes) and functions with vertical tangents (cusps); antiderivatives; the indefinite integral; the definite integral; the fundamental theorem of calculus ; the area under a curve; the area between two curves; transcendental functions: inverse functions, logarithmic and exponential functions; derivatives and integrals; limits (the indeterminate forms); hyperbolic functions and their inverses; inverse trigonometric functions.			
0333106	**General chemistry for life sciences**	**face-to-face**	**Credit hours: 3**
Prerequisite: -			
This course covers basic topics including: The scientific method, measurements and significant figures, units and dimensional analysis, naming simple inorganic compounds, stoichiometry, basic reactions in aqueous solutions and solution stoichiometry, properties of gases and kinetic molecular theory, measurements and calculations of energy associated with physical changes and chemical reactions, basic quantum theory and the electronic structure of the atoms, atomic periodic properties, ionic bonding, covalent bonding, molecular geometry, and hybridization of atomic orbitals.			

0334103	**Biology for life sciences**	**face-to-face**	**Credit hours: 3**
Prerequisite: -			
This course covers the fundamental principles of biology, focusing on the chemical basis of life, cell structure and function, energy transformations, and cellular processes. The course provides a comprehensive overview of biological concepts and processes, preparing students for advanced study in agricultural sciences..			
0304111	**Practical General Biology**	**face-to-face**	**Credit hours: 1**
Prerequisite: 0334103 or concurrent			
Laboratory experiments in microscopy and cells, chemical aspects of cells, plant and animal tissues, animal and plant physiology. Mammalian anatomy, and systematic of major living groups.			
0333109	**Experimental general chemistry**	**face-to-face**	**Credit hours: 1**
Prerequisite: 0333106 or concurrent			
Safety and laboratory rules; chemical observations; Avogadro's number; stoichiometry; volumetric analysis; oxidation and reduction; colligative properties; thermochemistry and equilibrium			
0342103	**General Physics for Life Sciences**	**face-to-face**	**Credit hours: 3**
Prerequisite: -			
Motion in a straight line, motion in two dimensions, newton's laws of motion, statics, work, energy, and power, linear momentum, temperature and the behavior of gases, thermodynamics, thermal properties of matter, electric forces, electric fields, electric potentials, direct currents.			
0332113	**Course Name: Experimental General Physics for life Sciences**	**face-to-face**	**Credit hours: 1**
Prerequisite: (0342103 or Sim.)			
Students perform 12 experiments of 3 hr/week duration. These experiments are: Measurements and Uncertainties, Collection and Analysis of Data, Vectors: Force Table, Newton's 2nd Law of Motion, Simple Harmonic Motion: Simple Pendulum, The Falling Sphere Viscometer, The Laws of Gases, Measurement of Resistance, The Potentiometer, Specific Charge of Copper Ions, Introduction to the Oscilloscope, Joule Heat, Lenses.			
0605151	**Biostatistics and Data Analysis**	**face-to-face**	**Credit hours: 3**
Prerequisite: 1900103			
Study the basic concepts of statistics and the methods used in data collection, analysis and presentation, especially in agriculture. To describe basic principles of data analysis, methods for calculating some statistical measures such as measures of central tendency and dispersion. The concept of simple linear correlation and regression as a method for measuring the relationship between two phenomena. Distinguishing between quantitative and descriptive variables and providing the student with the ability to			

address some of the problems that they encounter in their working lives in a scientific manner based on a scientific method.			
0661101	**Principles of Plant Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0334103			
This course deals with the importance of the plant production systems in achieving global food security. Major horticultural and field crops, their divisions, composition, growth, development, reproduction, and their appropriate environment for cultivation. An overview of major production practices, propagation, mineral nutrition, breeding and pruning, growth and development regulation and plant production systems for major agricultural crops.			
1900103	**Modern Digital Skills**	**Blended**	**Credit hours: 3**
Prerequisite: 1932099			
This course aims to enhance the students' digital knowledge and skills, placing a spotlight on Artificial Intelligence (AI) and cutting-edge digital technologies, to equip them for current and future jobs. The course allows participants to learn the foundations of the digital world and enable them to better utilize technology to advance their careers. The course material includes, but is not limited to: types of data, information, and content; digital identity; digital content creation in all forms; cyber security and safety; collaborating and working online; global trends and technologies such as Big Data, Cloud Computing, Artificial Intelligence, Internet of Things, Gamification; Balanced use of technology and social media; and digital career competencies needed in the current job market. Aligned with Education for Sustainable Development (ESD) and Sustainable Development Goals (SDGs), it instills responsibility for inclusive and sustainable practices in the digital era. As the digital landscape evolves, the course content is continuously updated to keep students well-prepared and informed about emerging digital technologies shaping the future. The course employs experiential and active learning methods, including interactive lectures, collaborative activities, and the use of digital tools. Assessment methods include exams, assignments, practical tasks and the integration of professional certifications, providing students with hands-on experience and industry recognized credentials that enhance their career prospects.			
0602101	**Principles of Animal Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0334103			
The student will learn the following topics: Importance of farm animals for production of food; breeds of farm animals (dairy cattle, beef cattle, dairy sheep, mutton sheep, wool sheep, dairy goats, chevon goats, chicken broilers, egg-laying chicken); edible (meat, milk and table eggs) and inedible (animal fiber) animal products; physiology of digestive and reproductive systems; increasing animal productivity through proper management of breeding, nutrition, reproduction and health; classification of feedstuffs based on the content of fiber, protein and energy; an overview on livestock sector in Jordan (population of farm animals, breeds, production of meat, milk and table eggs) and challenges facing this sector within the context of climate change			
0604104	**Principles of Soil Science & Irrigation**	**face-to-face**	**Credit hours: 3**

Prerequisite: 0342103			
Definition of soil and soil formation factors. Chemical and biological properties of soil. Soil fertility and major and minor elements needed for plant growth. Irrigation and drainage science, mathematical relationships of soil moisture and density, water quantity calculations, plant water needs, irrigation scheduling, irrigation methods (surface, sprinkler and drip irrigation), losses in the irrigation process, types and calculation of irrigation efficiency.			
0605101	**Principles of Agricultural Economics**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0301101			
Analysis of input-output, input-input, economic concepts, resources and systems, and output-output relationships. Analysis of costs of production, input and output decisions of agricultural firms, demand and supply and their related elasticity, market equilibrium, determination of prices and quantities, and types of markets. Basic agricultural economic concepts concerning resource use, price determination, and profit maximization are emphasized.			
0605215	**Macroeconomics for Agriculture**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605101			
Economic efficiency and full employment of resources, aggregate supply and demand, national income accounting, significance of the agricultural sector share of Gross Domestic Product (GDP), determining of GDP, consumption, investment, government expenditures and taxes, fiscal policy, money, banking and monetary policy, inflation, unemployment, foreign trade, balance of payments, and economic growth..			
0605216	**Agricultural Price Analysis**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605101			
Price theory and techniques for predicting price behavior of general economy and price behavior of individual agricultural products will be analyzed. Role of prices in the economic system, market structure, demand and supply of agricultural products, elasticity, market prices, price index numbers, and time-series analysis. An analysis of the factors affecting the prices of agricultural products and a study of the behavior of these prices, seasonal and cyclical price movement; government activities relating to agricultural prices, marketing margins and prices paid. It provides practice in the application of economics and statistics to agricultural price analysis..			
0635221	**Agribusiness and farm Management**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605101			
Principles and applications of the scientific method for making decisions related to the allocation of resources to the management and organization of operating a farm business profitably, analysis of basic farm constraints and use of the resulting information in farm planning and financial management activities. The course focuses on the applications of economic principles in the decision-making process, the preparation of budgets and the uses of linear programming as a planning tool, analysis of investment			

activities, and financial control tools, especially the balance sheet and profit and loss statement. The courses include practical exercises on the applications of economic principles in addressing specific problems in farm management. The course also focuses exclusively on the agricultural business sector, such as management concepts, management theories, and the decision-making process. application of management functions in the operation of agribusiness organizations; Planning, organizing, directing, coordinating, and controlling. And preparing market plans, setting operating budgets, cash flows, and capital, organizational structure of the organization, choosing the legal form of the organization, financial statements, human relations, managing and motivating people			
0635230	**Agribusiness Marketing**	**Blended**	**Credit hours: 3**
Prerequisite: 0605101			
Concept and functions of agribusiness marketing as it applies to the marketing of unprocessed and semi-processed agricultural products, methods of price determination, estimation of marketing margins, marketing channels, factors affecting prices, marketing channels, and marketing environment, marketing organizations, and methods of conducting marketing research.. The course presents to students various merchandising activities that affect the sale of food products through the food marketing system and that occur in the retail store.			
0605260	**Agricultural Extension**	**online**	**Credit hours: 3**
Prerequisite:			
Development, objectives, philosophy of agricultural extension, and role of extension in the process of agricultural and rural development and factors affecting its effectiveness are explored. Communication process, extension methods, dissemination and adoption process, planning and evaluation of extension programs, systems and approaches of extension, and development of agricultural extension in Jordan are covered.			
0635310	**Agricultural Production Economics**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605101			
Applications of economic principles to problems of agricultural production. Analysis of production functions, cost functions and their uses in determining optimal quantities of production inputs and outputs. Economically efficient and profit maximizing output, economies of size and scale, elasticity of substitution, demand functions for inputs, the impact of new technology on production, cost, and profit function, and decision-making through time and under risk and uncertainty			
0635325	**Agribusiness Finance and Accounting**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0635221			
Study of the concepts of agricultural finance and accounting, financial intermediation. Capital and credit needs of farms and agribusiness firms. Methods and procedures whereby agricultural firms acquire and utilize funds required for their successful operation. Emphasis is placed upon role of finance and financial planning, investment and loan appraisal, rate of interest, financial management, farm accounting system for			

the management and operation of agricultural firms, and financial performance analysis			
0635328	**Agribusiness Projects Analysis**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0635221			
The course examines the role of agricultural and agro-based industries projects in development, and aims at empowerment of students in project evaluation skills. Costs and benefits with and without the project are identified. Financial and economic analyses of technically sound agribusiness cultural projects are conducted using the main discounting techniques. Social, environmental and sensitivity analyses are integral components of the feasibility study. Students are trained to conduct feasibility studies using PC software.			
0635340	**Agricultural Policies and Development**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605215			
Role of agriculture in the economic development. Objectives of agricultural policies, Policies affecting agriculture, rural areas and agribusiness firms, including fiscal and monetary policies, food marketing, and trade policies are analyzed. The course discusses bases of economic and agricultural development, characteristics, obstacles, sources of finance, allocation theories, development strategies, theories of economic development, and models in agricultural development, agricultural policies and development in Jordan..			
0635360	**Rural Development**	**Blended**	**Credit hours: 3**
Prerequisite: 0605260			
Concepts of society, culture, social change, rural societies, the socio-cultural characteristics, features of underdevelopment, constraints, and incentives. Theories, dimensions and fields of rural development, role of extension, planning, implementation and evaluation of rural development programs, review of case studies of rural development in Jordan and selected countries			
0605428	**Agribusiness Risk Management**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0635221			
Various source of risk inherent in agricultural and agribusiness firms. Classical risk theories and their current applications in agricultural production and farm management issues will be introduced. Concepts of risk and uncertainty, trade-off between risk and income, subjective and objective measures of risk, decision matrix and decision tree, simple decision rules, expected utility theory, mean-variance analysis, firm's decision under uncertainty, and production decision under risk. Risk reducing strategies such diversification, future markets, hedging and insurance will be introduced with practical problems of the real world.			
0605491	**Computer applications and selected topics in agricultural economics**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
Practical exercises in the fields of statistical analysis on the computer, finding results for statistical analyzes,			

practicing data presentation, finding results using computers and statistical programs for measures of central tendency, measures of dispersion, hypothesis testing, t-test, analysis of variance, chi-square, correlation and simple regression. Various computer applications in various fields of economics, financial analysis of agricultural projects, feasibility studies, budgets and accounting books			
0605446	**Natural resources and Environmental Economics**	**face-to-face**	**Credit hours: 3**
Prerequisite:0635328			
This course includes a description of economic issues related to natural and environmental resources, the application of economic analysis in the management of natural resources and the environment, and economic issues related to the agricultural environment and environmental policies. Employing microeconomic tools to analyze external economies, the welfare of society, public goods, property rights, the imbalances in the performance of market economies, and the analysis of social benefits and costs. Environmental assessment, its justifications, methods using market prices, changes in productive capacity and the ability to generate income, opportunity costs, replacement approach and preventive costs. Economic incentives for environmental protection and the economics of sustainable development. Understand and solve economic problems related to natural and environmental resources and the economic and social factors that determine how to manage natural and environmental resources			
0635450	**Econometrics**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605151			
Use of economic theory and statistical methods to estimate economic models to enhance agribusiness decision-making is the focus. Concepts of simple and multiple regression and their related tests of significance of parameter estimates are presented. Econometric issues of functional form, relevant variables, predictive performance, model diagnostics, and major estimation problems in regression are examined. Non-parametric statistics, matrices, the related calculations and the related statistical tests are examined. Applications of techniques to agricultural economics and agribusiness problems are used..			
0605455	**Agricultural Economic Analysis**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605216			
Basic mathematical methods and their applications to micro and macro economics: elementary techniques in algebra, matrices, single and multivariable calculus, unconstrained and constrained optimization, applications of calculus to economics, comparative static analysis, equilibrium and comparative analysis.			
0605458	**Operational Research in Agriculture**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0635221			
Applications of mathematical programming to agribusiness decision problems. Introduction to linear programming, sensitivity analysis and interpretation of results. Linear-programming application in the use of resources in farm and agribusiness production and marketing. Simplex-based sensitivity and duality, post optimality analysis, transportation models and computer applications are covered.			

0635441	**Food Security**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
The Arab agriculture, land and water resources, land use and the production pattern in the Arab countries, agricultural policies, the share of agriculture in GDP and employment and the development of their relative importance. Describe and analyze interdependencies between the Arab agriculture and integration in economic development, the Arab free trade area, and intra-Arab agricultural trade, total and agricultural trade balance and food gap in Arab countries. Strategic components and approaches of food security, policies and tools of nutrition and food security, integrated food plan, food balance sheet, principles of food self-reliance, global food security, food security in the Arab countries and in Jordan..			
0605492	**Methods of scientific research**	**face-to-face**	**Credit hours: 2**
Prerequisite:			
The concept of scientific research, its objectives, steps and stages of scientific research. Research design: types of research, research strategies, variables and measures: types of variables, validity and reliability of quantitative research and qualitative research. Data analysis. Documentation in scientific research: documentation in the text, documentation in the list of references, documentation in the list of sources			
0606101	**Principles of Plant Protection**	**online**	**Credit hours: 3**
Prerequisite: 0334103			
This course is designed to familiarize the student with the principles of plant protection. It will focus on the basic aspects of entomology and plant pathology.			
0601494	**Field Practices in Horticulture and Crop Science**	**face-to-face**	**Credit hours: 1**
Prerequisite: 0661101 and successfully pass 110 credit hours with department approval			
The course primarily means providing the student with basic practical skills in the agricultural field, specifically in the field of vegetables, fruits and crops. It also works to break the barrier between the student and the field and between theoretical and applied information. The student is exposed to the application of miniature models of what the farmer does in his field, such as multiplying vegetables, cultivating the land, planting seeds and seedlings in the open field and greenhouses, and working to track the crop service from planting to the stage of harvesting. Training on the mechanism of dismantling and installing greenhouses and tunnels, grafting seedlings, planting and serving different field crops, identifying and serving different fruit trees, and also identifying the mechanism of applying good agricultural practices in the field, reducing post-harvest losses, inferring the components of the quality of ripe fruits and preparing the product for marketing.			
0602497	**Field Practices in Animal Production**	**face-to-face**	**Credit hours: 1**
Prerequisite: 0602101 and successfully pass 110 credit hours with department approval			
Breeding poultry flock from one day old until marketing. They learn how to measure their weight each week, the amount of feed consumed and what the feed conversion ratio is. Herds of sheep and goats are			

raised throughout the production cycle. Students will learn how to do daily practices. These practices include conception, feeding infant animals, feeding the herd at different stages, milking, estrus, determination, castration, docking, trimming hooves, removing horns, grafting and medicine, wool shearing, raising dairy cows and how to do daily practices. These practices include childbirth, infant feeding, herd feeding at different stages, milking, estrus synchronization, selection, selection paths on dairy farms.			
0665493	**Field Practices in crop budgets**	**face-to-face**	**Credit hours: 2**
Prerequisite: 0605101 and successfully pass 110 credit hours with department approval			
Practical exercises in the fields of farm management, preparing budgets and financial analysis of investment activities in agricultural businesses, applying economic, statistical and mathematical principles, planning tools and administrative control in analysing farm data..			
0665494	**Field Practices in Projects Analysis**	**face-to-face**	**Credit hours: 2**
Prerequisite: 0605101 and successfully pass 110 credit hours with department approval			
Practical exercises in the areas of determining the costs and benefits of projects with and without the project, conducting economic and financial analyses of agricultural projects using the main discount methods, and how to conduct feasibility studies for projects on the computer.			
0665495	**Field Practices in Finance and Accounting**	**face-to-face**	**Credit hours: 2**
Prerequisite: 0605101 and successfully pass 110 credit hours with department approval			
Practical training in the field of financial planning, preparing accounting books for the farm, financial planning, loan analysis, interest rate, financial management, and the accounting system for management and operation			
0655492	**Graduation project in agricultural economics and Agribusiness Management**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605101 and successfully pass 110 credit hours with department approval			
Students are trained to collect information through literature review on specific topics relating to agricultural economics and agribusiness management. Considerations are given to research design, procedures, and presentation of results. Formal presentations of student research are made and discussion by all students			
0635327	**Agribusiness Cooperatives**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0635221			
The course explores the functioning, management of agribusiness cooperatives. Role and potential contribution of cooperatives in agricultural and rural development by solving problems in production and marketing of agribusiness products. The course presents an analysis of the principles of cooperation, differences between cooperatives and non-cooperative corporations, objectives, classification, structure, sources of finance, steps of organization, administration, and factors behind the success of cooperatives and			

the development of the cooperative movement in Jordan.			
0605465	**Communication Methods and Technology Transfer**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605260			
The diffusion of information and the innovation adoption process, communication concepts, skills, patterns, and effective communication process. Extension teaching methods used in Information, technology transfer to extension clientele, types, advantages and disadvantages of individual, group and mass media methods of extension are examined. The course explores theoretical models of program development, needs assessment and analyzing and interpreting program priorities, and resources needed to design, organize, and conduct extension education programs and activities for targeted audiences are explored			
0645334	**International Economic**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0605215			
This course includes the distinction between international trade and the international economy, the national income accounts, the price of wool, the fixed exchange rate system, and the intervention of the central bank. Tariff Related Trade, Through Quota System and Regulatory Procedures, Trade Policies and Their Impact on Agriculture, Agricultural Policies and Their Impact on Trade, Preferential Trade Agreements; Free trade area, customs union, common market, economic union and monetary union, international transfer of factors of production, multinational companies and foreign direct investment			
0641431	**Farming Systems**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0661101			
This course aims to introduce students to the basics of agricultural systems through knowledge of their types, agricultural management practices, optimal use and management of natural resources, interaction with environmental and climatic factors and their importance for food security. In this syllabus, the mechanism of designing and implementing agricultural systems for selected crops will be discussed. Topics will include crop rotation, intercropping, organic farming, conservation agriculture, high-productivity and low-cost farming systems, dry land agriculture, sustainable agriculture, and hybrid production systems. Factors related to environmental systems, climatic conditions, crop management and their impact on the productivity of some selected agricultural systems will be discussed.			
0644348	**Soilless Culture**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
Soilless cultures system for crop production under controlled environmental conditions (controlled light wavelength and photoperiod, temperature and air humidity) Ionic composition of nutrient solution, sadistic elements through controlling negative and positive electrolytes, controlling the acidity of the plant's nutritional solution and ways to change it to overcome the problem of increasing its salinity, Methods of using hydroponic solutions as a medium for fish ponds, and in other cases using fish ponds water as a plant nutrient solution in hydroponics.			

0601212	**Fundamentals of Fruit Trees Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0661101			
Students will learn the importance of fruit trees, their classification, orchard establishment (site selection, rootstocks, cultivars, planting systems, and frost protection), flowering, fruit set, fruit drop, fruit growth and maturation, main cultural practices: pruning and training systems, fruit thinning, fertilizer application, irrigation, and pest control), harvesting and handling, and use of plant growth regulators.			
0601222	**Fundamentals of Vegetable Crops Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0661101			
Students will learn with the principles of production of vegetables crops, their importance, classification, proper environmental conditions suitable for their growth, different cultural practices for their production, flowering, fruiting, maturity, harvesting and storage.			
0602212	**Poultry Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0602101			
This course aims to enable students to learn the following topics: the poultry industry in Jordan, breeds and breeding systems, anatomy and physiology of chickens, digestion, absorption and metabolism, hatchery and hatchery management, incubation and care of chicks, management of egg flocks, principles of poultry feeding and product marketing. Practical applications at different stages of production. The practical part includes a visit to a farm producing meat chickens and chicken eggs, and dissection of meat chickens and eggs to know the internal parts and all the different devices that were covered in the theoretical lectures, in addition to determining the quality of eggs by measuring the whites, yolks and thickness of the shell in the laboratory on different egg samples. Provide students with videos about the poultry production process			
0602323	**Fish Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0602101			
This course is concerned with introducing students to the economic and nutritional importance of fish wealth, while giving the student a general overview of the related sciences. The course will provide an overview on fish production includes providing information about fish production in Jordan and the world, types of fish and their characteristics, the foundations and care of fish, the foundations of fish farming from site selection and pond construction, fish productivity from fish farms, fish farming activities and its components, and means of developing fish farms - appropriate nutrition, improvement, operations Hatching, care and fattening, and creating suitable conditions for breeding. The course also contains the most important common diseases, in addition to the problems that educators face and how to overcome them. Expert's people will be invited to give students lectures or a variety of interactive activities.			
0603101	**Principles of Food and Nutrition**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0334103			
Introduction to the nutrients with respect to classification, dietary sources, functions and body			

requirements. Concept of balanced diet and the etiology and management of malnutrition. Types and causes of food spoilage, food preservation, and food-borne diseases, emphasizing the status of nutrition and food industries in Jordan.			
0602215	**Dairy Cattle Production**	**face-to-face**	**Credit hours: 3**
Prerequisite: 0602101			
The registered students of the current course will gain the scientific knowledge related to dairy cattle science. During this course, students will learn many topics regarding dairy cattle production including the basic principles of breeding and systems of genetic improvement, anatomy and physiology of digestive system, the nutrient requirements and feeding practices, anatomy and physiology of reproductive system, and lactation physiology. Furthermore, students will gain the skills of innovative thinking, get the information needed from the right sources, problem solving, assignments, case studies, and group discussions. To achieve the course goals, the evaluation process will be based on a well-designed rubric table			
0644352	**Climate Change**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
Students will learn the physics of the atmosphere and climate indices around the globe, patterns of climate environmental change, and their assessment. Introduction to climate modeling and climate data, climate change scenarios and climate change impacts on water resources, rainwater distribution, soil erosion, floods, forest fires and effects on agricultural production, the economics and technology of climate change, and carbon emissions. Among some of the technologies and practices are advanced low-energy desalination systems, rainwater traps, sustainable irrigation and soil reforming for sustainable agriculture, techniques to reduce greenhouse gas emissions in meat and protein production, microalgae farming for food and fuels, carbon capture and sequestration technologies in power plants. Students will learn how to analyse emerging innovative technologies and practices, how to assess their climate change, recommendations to facilitate their implementation, and how to use green and social financial instruments to decrease community vulnerabilities and increase climate change resilience. Students also assess community vulnerabilities and recommend risk reduction technologies and practices to increase resilience. Additionally, students learn how to monetize environmental and social benefits for each technology or sustainable practice, green financing mechanisms, carbon offset exchanges, and some government grants to fund their implementation in the community. Experts people will be invited to give students lectures or a variety of interactive activities.			
0634230	**Agrometeorology**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
Atmosphere components and their classification. Atmospheric pressure: nature and local changes. Physics of the atmosphere. frost. Relationships between atmospheric temperature and soil temperature. The mechanism of formation of monsoons. Atmosphere types: clouds, dew, water vapor, rain, snow and hail. Climate measurement methods.			
0634333	**Geographic Information Systems**	**face-to-face**	**Credit hours: 3**

Prerequisite: 1900103			
Students will learn about the components of geographic information systems and their most important fields of applications, data models and sources, coordinates and projection systems, global positioning systems, types of maps and their components, basic spatial analysis and terrain analysis. Through the practical part of the course, the student will get acquainted with the interfaces and functions of GIS software, with examples in its areas of application. Students will acquire the knowledge and skills in the field of geographic information systems, which will open career fields for him after graduation. Experts people will be invited to give students lectures or a variety of interactive activities.			
0634446	**Environmental Impact Assessment**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
This course is an Introduction to the Environmental Impact Assessment (EIA), Jordanian laws, and regulations for EIA, an introduction to the concepts and methodologies, noise and air standards, basics of hydro-geochemistry of water and smart cities, valued environmental components, and various stages of the EIA process which include: screening, scoping TOR, baseline conditions, evaluation and impact assessment, impact management, Environmental Management Plan (EMP) and environmental monitoring program, EIA and EMP reporting, public consultation, reviewing, Environmental Auditing (EA), appeal rights and decision making. a working draft on a local project. The student will be able to understand EIA and its guiding principles, identify regulations that govern the EIA in Jordan, understand the screening and scoping processes, analyze the impact on resources and environment as well as evaluate the impact of development projects, interpret options for evaluating environmental and social impacts. The student will be able to work in a group to estimate and report the impact of a hypothetical project on the environment from general knowledge. The student will be able to know the purpose and role of EIA in the decision-making process, the purpose of developing EMP and follow-up procedures, and options for designing these procedures.			
0604334	**Green skills and sustainability**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
This course aims to enhance students' thinking and develop their skills and knowledge in the fields of sustainability and green environmental skills, with the aim of building more sustainable practices in the sectors of land and water management and plant and animal breeding .Students will learn how to identify sustainable environmental issues, conduct environmental surveys, restore degraded ecosystems, and understand conservation strategies. By integrating academic studies with practical applications in a variety of settings, students will have a realistic and comprehensive educational experience, The course will address topics such as carbon neutrality, striving towards net-zero emissions, and how to promote sustainability in multiple areas focusing on agriculture and the environment, in addition to exploring low-carbon technology to support the development of education in agricultural areas and enhance scientific understanding of what a sustainable future may hold.The course also aims to adopt an integrated approach to agricultural sustainability management while presenting practical options that can be followed in the near future, which enhances awareness of environmental and sustainability issues and emphasizes the importance of achieving sustainable development goals. Ultimately, the course will contribute to increasing students' awareness of the major environmental issues surrounding them, and encouraging them to think critically about their			

effective role in building a sustainable future.			
0605322	**Innovation and Entrepreneurship for agribusinesses**	**face-to-face**	**Credit hours: 3**
Prerequisite:			
This course aims to introduce students to the concepts of innovation and leadership and provide them with the basic knowledge and skills to develop ideas into applicable projects in the agricultural sector. This course also uses theoretical and practical applied methodologies to train students and prepare them to discover opportunities and unleash their energies in this field. It includes the following topics: culture and systems of innovation and creative thinking, entrepreneurship and modelling, management of agricultural projects and small companies, social entrepreneurship, intellectual property, technology marketing and sources of financing. Success in this subject requires that students develop a business plan for a new, applicable project or idea.			
0662490	**Fundamentals of Employment Readiness (Interpersonal Skills and Professional Development-General)**	**face-to-face**	**Credit hours: 3**
Prerequisite successfully pass 110 credit hours with department approval			
This course aims to help students acquire the skills, experiences and competencies necessary to enter the labor market efficiently, and to make graduates distinguished in their professional fields and able to solve the problems they face by providing them with the skills and competencies required for the labor market. The course will focus on enhancing the technical, professional and personal capabilities of students while discussing the concepts of leadership, creativity, innovation, productivity, administrative hierarchy and capacity development. The course also includes a description of the local and regional labor market and the jobs available for the academic program, with an introduction to the laws, regulations and legislation in force related to the profession, in addition to presenting the reality of graduates of the School of Agriculture in general. The course is characterized by giving an effective role to experts and pioneers from the public and private sectors to meet with students to discuss the work environment and job requirements in the major, in addition to presenting their experiences in their respective fields.			
0615491	**Employment Readiness - Specialized Skills in Agricultural Economics and Agricultural Business Management**	**face-to-face**	**Credit hours: 3**
Prerequisite: successfully pass 110 credit hours with department approval			
This course aims to provide students with the basic skills and knowledge necessary to pursue career paths in the field of agricultural economics. The course combines theoretical knowledge, practical exercises, current studies, and field insights to provide a comprehensive educational experience that contributes to sustainable agriculture. The main skills covered include: (1) education and training to obtain appropriate education in agricultural business management, farm management and marketing, (2) technical skills that include developing expertise in determining the optimal exploitation of resources, preparing budgets, and determining economic size to maximize profit. (3) Communication and cooperation by enhancing effective communication skills with colleagues, farmers, researchers and stakeholders, and collaborating with multidisciplinary teams to address risk challenges in the field of agricultural production, (4) Environmental awareness through the environmental impact on the economy, (5) Organizational knowledge and that By			

understanding regulations and policies related to environmental impacts and farm management, identifying import/export requirements and assessing risks, (6) the ability to solve problems and make decisions, and this is by developing critical thinking skills to diagnose problems facing farmers and guidance methods to help farmers and propose effective solutions and enhance opportunities for adaptation. With climate change and emerging threats, (7) Work ethics necessary for success in managing agricultural work. The course will include hosting experts to evaluate the students' mastery of the skills and competencies required for the labor market in the agricultural economics major. At the end of the semester, a graduation project will be submitted that includes collecting data, conducting studies, and presenting the results to experts. An assessment will be made of their readiness for the labor market and the extent of their ability to perform the basic tasks related to the competencies required for the specialization.

Inclusion rates in the program:

A. Courses that will be taught on the principle of full **online:**

Total hours that will be taught on the principle of full online in this program: **(12.43 hour).**

The percentage achieved for the subjects that will be taught on the principle of full online in this program: **(9 %)**

B. Subjects to be taught on the **blended** learning principle:

The total number of hours that will be taught on the principle of blended learning in this program: **(26.14 hour)**

Percentage achieved for subjects that will be taught on the principle of blended learning in this program: **(18.94 %)**

C. Face-to-face learning courses:

Number of hours of face-to-face education: **(99 hour).**