

**Study Plan**  
**Faculty of Agriculture**  
**MASTER in Animal Production**  
**(Thesis Track)**

**First: GENERAL RULES & CONDITIONS:**

Plan Number			2013
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1. This plan confirms to the valid regulations of programs of graduate studies.
2. Specialties of Admission:
  - The First priority: Bachelor's of Animal production.
  - The Second priority: Bachelor's of Poultry production
  - The Third priority: Bachelor's of Agricultural Sciences
3. Admission policies: The Third Policy

**Second: SPECIAL CONDITIONS:** None.

**Third: STUDY PLAN: Studying (33) Credit hours as follows:**

**1. Obligatory Courses : Studying (15) credit hours successfully:**

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
0601701	Experimental Design and Analysis	3	3	-	
0602713	Environment and Farm Animals Productivity	3	3	-	
0602735	Diseases of Farm Animals	3	3	-	
0602782	Ruminant Nutrition	3	3	-	
0602786	Poultry Nutrition	3	3	-	

**2. Elective Courses: Studying (9) Credit hours successfully from the following:**

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
0602704	Range Animal Nutrition	3	3	-	
0602751	Physiology of Reproduction	3	3	-	
0602755	Physiology of Lactation	3	3	-	
0602756	Farm Animals Behavior	3	3	-	
0602761	Quantitative and Population Genetics	3	3	-	
0602789	Production Systems of Small Ruminants	3	3	-	
0602793	Biotechnology in Animal Production	3	3	-	
0603792	Minerals and Vitamins in Animal Nutrition	3	3	-	

**3. Thesis: (9) Credit hours # (0602799).**

**Course Description**  
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**(0601701) Experimental Design and Analysis (3 Credit Hours)**

This course covers linear and multiple regression and correlation, analysis of variance and basic experimental design analysis. Mean separation procedures, Duncan's Multiple Range Test (DMRT), Turkey's W. procedure, Least Significant Difference (LSD), and Orthogonal contrasts. Students will be exposed to the uses of PC in experimental design and analysis.

**(0602704) Range Animal Nutrition (3 Credit hours)**

This course covers Factors influencing the performance of grazing animals; techniques for determining feed intake of grazing animals; assessment of nutritive characteristics of forage plants and their effect on voluntary forage intake; factors affecting selection of plants; grazing behavior; investigating the functional relationship between forage production and animal performance.

**(0602713) Environment and Farm Animals Productivity (3 Credit hours)**

This course covers Effects of environmental factors on farm animal production parameters: management, nutrition, reproduction, growth and animal products (milk, meat, eggs and wool); animal housing in relation to environmental factors.

**(0602735) Diseases of Farm Animals (3 Credit hours)**

This course covers The most important epidemic farm animal diseases associated with bacteria, viruses, fungi and parasites that may cause economic losses, diseases of newborn animals, sterility; zoonotic diseases.

**(0602751) Physiology of Reproduction (3 Credit hours)**

This course covers Anatomy and physiology of reproductive system; endocrine glands and hormones of reproduction; estrous cycle and ovigenesis; insemination; fertilization; pregnancy; parturition; fertility and infertility in farm animals.

**(0602755) Physiology of Lactation (3 Credit hours)**

This course covers Development, growth and anatomy of the mammary glands; hormonal and neural control of lactation; milk synthesis and milk secretion; physiological and environmental factors affecting lactation.

**(0602756) Farm Animals Behavior (3 credit hours)**

This course covers Genetics and behavior; environment and behavior; development of behavior; involuntary movements and behavior; categories of behavior; hormones and behavior; examples of behavior for different animals: sexual behavior, social behavior, learning behavior, maternal behavior, aggressive behavior; adaptation; heat regulation and behavior; role of behavior in management of farm animals.

**(0602761) Quantitative and Population Genetics (3 Credit hours)**

This course covers Principles and applications of population and quantitative genetics; factors affecting genetic and genotypic frequencies; methods of estimating genetic and non-genetic variances; heritabilities and breeding values; the role of mating systems and selection procedures in producing superior genetic populations.

**(0602782) Ruminant Nutrition (3 Credit hours)**

This course covers Advanced concepts in ruminant nutrition for the practicing agricultural professional; protein, energy, vitamins and minerals nutrition in relation to the nutritional needs and practical feeding of dairy cattle, sheep and goats; new developments in feeding systems; feed additives and the prevention and treatment of metabolic disorders.

**(0602786) Poultry Nutrition (3 Credit hours)**

This course covers Poultry feed manufacturing in Jordan; sources of energy: carbohydrates, fats, and proteins; requirements for chickens of: energy, protein, amino acids, vitamins and essential inorganic elements; balanced and least cost ration formulation.

**(0602789) Production Systems of Small Ruminants (3 Credit hours)**

This course covers Basis for classifying production systems, types of production systems in Middle East: pastoral, agro-pastoral and commercial; general characteristics of production systems: attributes of flocks/herds (size, structure, composition, productive performance), feeding calendar, mobility of flocks/herds, marketing channels, constraints to production, opportunities for improving production; questionnaire design and data analysis.

**(0602793) Biotechnology in Animal Production (3 Credit hours)**

This course covers Scientific and technical understanding of animal production biotechnology; application and impact of biotechnological techniques on animal production; advances in biotechnology applications and their development in: feeds and rumen microbiology, lactation and reproduction, immunology and health, growth and performance; animal products; advantages and threats of biotechnology; ethical and safety aspects of biotechnology.

**(0603792) Minerals and Vitamins in Animal Nutrition** (3 Credit hours)

This course covers Vitamins and vitamin-like substances, chemical structures, functions, and requirements; digestion; absorption; transport and metabolism in farm animals; deficiency symptoms. Requirements of farm animals of micro- and macro-minerals; deficiency symptoms; toxicity and antagonism of minerals; heavy metals; determination of mineral concentrations in animal organs, tissues and products.