The postgraduate courses for the Master's and Ph.D. degrees in Veterinary Medicine and the number of weekly lecture hours and practical and theoretical lessons for each course.

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Anatomy and embryology	First: Master's-:			
	1	Applied anatomy	2	2
	2	Anatomical technique and surface anatomy	2	2
	3	Bone and joint science	2	2
	4	Digestive system (comparative)	2	2
	5	Comparative genitourinary system	2	2
	6	Respiratory system (comparative)	2	2
	Second: Doctorate-:			
	7	Circulatory, lymphatic, and cardiac systems (comparative)	2	2

	8	The nervous system, specialized senses, and endocrine glands (comparative)	2	2
	9	General and private embryology	2	2
	10	Bird anatomy	1	2
	11	Plastic	1	2
	12	mummification	1	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Histology	First: Master's-:			
	13	Cell science and cell chemistry	1	2
	14	Histology (general)	2	2
	15	Histological and histochemical composition of the blood and lymphatic system (comparative)	1	1
	16	Histological and histochemical composition of the body's muscles, heart, and blood vessels (comparative)	1	1
	23	Histology of domestic birds	2	2
	24	Fish histology	1	2
	25	Chromosomal science and various	2	1

		changes		
	26	Preparatory methods for tissues and histochemistry	2	2
	27	Preparatory methods for electron microscopyAnd its applications	2	2
	28	Histological and histochemical composition of wild birds	2	2
	29	Histological and histochemical composition of wild birds	2	2
	Second: Doctorate-:			
	17	Histological and histochemical structure of the respiratory system (comparative)	1	1
	18	Histological and histochemical composition of the digestive system (comparative)	2	2
	19	Histological and histochemical composition of the genitourinary system (comparative)	2	2
	20	Histological and histochemical composition of the nervous and endocrine systems	2	2

	21	Histological and histochemical composition for the special senses	1	2
	22	The histological and histochemical composition of the skin, hoof, hoof, and nails	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Physiology	First: Master's-:			
	30	Endocrine physiology	2	2
	32	Bird Physiology (Advanced)	2	2
	33	Nerve and muscle physiology	2	2
	34	Ruminant physiology	2	2
	35	Environmental, localization and cell physiology	2	2
	36	Blood physiology	2	2
	Second: Doctorate-:			
	31	Reproduction for mammals	2	2
	37	Physiology of digestion, metabolism and energy	2	2
	38	Physiology of pollution	1	2
	39	Radioactive isotopes and their biological uses	2	2
	40	Physiology of altitude	1	1
	41	Fish physiology	1	2

Subject	Course	The Course	The number of

	number		hours	
			Lecture	practical
Biochemistry	**First: Master's-:**			
	42	Basics of biochemistry	2	3
	43	Nutritional metabolism	1	2
	45	Hormone chemistry and reproduction	2	2
	47	Clinical biochemistry	2	2
	48	Biochemistry of birds	2	2
	49	Biochemistry of microbes	2	2
	51	Fish biochemistry	1	2
	Second: Doctorate-:			
	44	Chemistry of tissues and bodily fluids	2	2
	46	Nutrition chemistry	2	2
	50	Radiation biochemistry	1	2
	52	Molecular biology	2	2
	53	Biophysics	2	2
	54	Immunochemistry	2	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
ma nne rs	First: Master's -:			

	55	Behavior and care of ruminant animals (specific courses in livestock, buffalo, sheep, goats and camels)	2	3
	56	Behavior and care of horses	2	3
	57	Behavior and care of domestic animals	1	2
	58	Behavior and care of laboratory animals	2	2
	61	Behaviors and care of rabbits	1	2
	Second: Doctorate-:			
	59	Behavior and care of wild animals	2	2
	60	Poultry behavior and care	2	2
	62	Experimental animal behaviours	1	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Animal	First: Master's-:			

	63	Nutrition basics (specific courses)	2	2
	65	Farm animal nutrition (type) (Cow and buffalo nutrition - sheep and goat nutrition - horse nutrition - camel nutrition)	2	2
	66	Feeding birds and rabbits (advanced)	2	2
	67	Feeding wild animals	1	2
	71	Applied nutrition (qualitative)	2	2
	72	Clinical nutrition and malnutrition diseases	2	2
	73	Fish feed	2	2
	Second: Doctorate-:			
	64	Grass material	2	2
	68	Feeding experimental animals	1	2
	69	Feed additives	1	2
	70	Nutrient analysis (plant – animal)	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Pathology	First: Master's-:			
	74	General Pathology and Oncology (Advanced)	2	2

	75	Pathology of microbial and parasitic diseases of animals	2	2
	76	Pathology of malnutrition	1	2
	78	Reproductive pathology	1	2
	79	Avian pathology	2	2
	81	Toxicology pathology	2	2
	82	Surgical pathology	2	2
	85	Fish pathology	1	2
	Second: Doctorate-:			
	77	Pathology of environmental pollution	1	2
	80	Experimental pathology	1	2
	83	Pathology of laboratory animals	1	1
	84	Genetic pathology	1	1

Subject	**Course number**	**The Course**	**The number of hours**	
			Lecture	**practical**
Clinical pathology	First: Master's-:			
	87	Testing organ function, acid balance, body fluids, and urine.	2	2

	88	Diagnosis of blood diseases and marrow examination	1	2
	92	Clinical pathology chemistry	1	2
	Second: Doctorate-:			
	86	Clinical Pathology (Advanced)	3	2
	89	Clinical pathology of poultry	1	2
	90	Clinical pathology of fish	1	2
	91	Clinical immunopathology	1	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Bacteriology , immunity	First: Master's-:			
	93	General bacteriology (advanced)	1	2
	95	Molecular biology of bacteria	2	2

	96	Bacterial and fungal toxins	1	2
	100	Bacteriology and mycology of birds and rabbits	2	2
	101	Bacteriology and mycology of invertebrates	2	2
	102	Bacteriology and mycology of farm animals	2	2
	103	Bacteriology and mycology of pets	2	2
	104	Bacteriology and fungi manufacturing in the animal field	2	2
	105	Bacteriology and mycology of fish	2	2
	Second: Doctorate-:			
	94	Special bacteriology (advanced)	3	2
	97	Basic immunity	2	2
	98	Applied and molecular immunology	2	2
	99	Advanced mycology	2	2

Subject	**Course number**	**The Course**	**The number of hours**	
			Lecture	**practical**
Virology	First: Master's-:			
	106	General virology (advanced)	2	3
	107	Virology (private)	3	2
	108	Molecular biology of viruses	2	2
	109	Virus diagnostics	2	2
	110	Virus immunology	2	2

	113	Viruses of wild animals and birds	2	2
	114	Reproductive viruses	2	2
	117	Virology of domestic and experimental animals	2	2
	120	Virology of poultry and rabbits	2	2
	121	Fish virology	2	2
	Second: Doctorate-:			
	111	Viral vaccinology	2	2
	112	Specific viruses (cattle, buffalo, camels, horses, sheep, goats)	2	2
	115	Insect-borne viruses	2	2
	116	Cancer viruses	2	2
	118	Virus biotechnology	2	2
	119	Industrial virology in the animal field	2	2
	122	Viruses pollute the environment	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Parasites	First: Master's-:			
	123	Veterinary medical insects	2	2
	124	Worms	2	2
	125	Protozoa	2	2
	126	Parasites of birds and rabbits	2	2
	129	Clinical parasitology	2	2
	130	Parasites of wild animals	2	2

	133	Fish parasites	2	2
	134	Reproductive system parasites	2	2
	136	Parasites common to humans and animals	1	1
	Second: Doctorate-:			
	127	Snails and their medical importance	2	2
	128	Parasitic immunity	2	2
	131	Veterinary parasitology	2	2
	132	Physiology and chemistry of parasites	2	2
	135	Parasites as a source of environmental pollution	1	2
	137	Genetic engineering to diagnose parasites	2	2
	138	General parasitology (advanced)	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Pharmacology	First: Master's-:			
	139	General Pharmacology (Advance)	2	2
	142	Anesthesia pharmacology	2	2
	143	Device pharmacology	2	2
	145	Pharmaceutical hormones	1	2
	146	Chemotherapy	2	2
	147	Biological evaluation of the drug	1	1
	152	Fish pharmacology	2	2

	153	Pharmaceuticals	2	2
	154	Pharmaceutical marketing and media	2	1
	Second: Doctorate-:			
	140	Pharmacology of the autonomic nervous system and topical hormones	2	2
	141	Pharmacology of the central nervous system	2	2
	144	Metabolic pharmacology	2	2
	148	Immunopharmacology	2	1
	149	Drug interaction	2	1
	150	Clinical pharmacology	2	2
	151	Medication residue	2	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Dairy health and technology	First: Master's-:			
	156	Microbiology of dairy products	2	2
	157	Technology and preservation of dairy products	2	2
	158	Food analysis (qualitative assessments of dairy products - eggs, oils and fats)	2	2
	159	Food poisoning	1	2
	Second: Doctorate-:			
	155	Health control of dairy products (advanced)	2	2

	160	Specific courses (in milk contamination - milk production disorders - diseases transmitted through milk and its products - suitability of eggs, oils and fats)	2	2
	161	Sanitary affairs for dairy factories	2	2
Subject	Course number	The Course	The number of hours	
			Lecture	practical
Meat health and technology	First: Master's-:			
	162	Health of the slaughtered animal	1	2
	164	Health control of meat and its products	2	2
	165	Inspection of poultry and rabbit meat	1	2
	166	Food technology (specific courses in: meat technology - poultry technology - fish technology)	1	2
	167	Microbiology of meat, fish, poultry and their products	2	2
	169	Analysis of meat, fish, poultry and their products	2	2
	172	Forced slaughter	1	1
	173	Meat contaminants (chemical residues)	2	2
	Second: Doctorate-:			
	163	Health and management of slaughterhouses	2	2
	168	Animal waste (advanced)	2	2
	170	Preserving meat, poultry, fish and their products	2	2
	171	Sanitary affairs for meat, fish and poultry factories	2	2

	174	Food packaging	1	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Internal diseases	First: Master's-:			
	175	General Medicine (Advanced)	2	2
	176	Ruminant animal diseases, specific courses (cattle, buffalo, camels, sheep, goat)	3	3
	177	Diseases of the equine species	2	2
	178	Domestic animal diseases	2	2
	179	Diseases of wild animals	2	2
	180	Metabolic disorders diseases	2	2
	182	skin diseases	1	2
	184	Stress diseases in animal transport	1	2
	Second: Doctorate-:			

	176	Ruminant animal diseases, specific courses (cattle, buffalo, camels, sheep, goats)	3	3
	181	Nutritional deficiency diseases	2	2
	183	Diseases of newborn animals	2	2
	185	Clinical diagnosis of internal diseases	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Infectious diseases	First: Master's-:			
	186	Infectious cattle diseases	2	3
	187	Infectious diseases of sheep and goats	2	2
	188	Infectious beauty diseases	2	2
	189	Infectious diseases of horses	2	2
	190	Infectious domestic animal diseases	2	2
	191	Laboratory animal diseases	1	2
	192	Udder and calf diseases	2	2
	Second: Doctorate-:			
	193	Infectious diseases of buffalo	2	3

	194	Infectious diseases of wild animals	2	2
	195	Clinical diagnosis of infectious diseases	2	2
	196	Infectious diseases (general)	2	3

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Medicine Forensic, toxicological and veterinary procedures	First: Master's degree			
	199	Environmental toxins	2	2
	201	Laboratory diagnosis of toxins	2	2
	202	Drug toxicity	1	2
	Second: Doctorate-:			
	197	Forensic Medicine and Veterinary Procedures (Advanced)	2	2
	198	General toxicology (advanced)	2	3
	200	Toxins from a forensic medical point of view	2	2

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Obstetrics and reproductive diseases and inoculation Artificial	First: Master's-:			
	203	Lack of fertility and stress	2	2
	204	Advanced reproduction in females, specific courses (in ruminants, equine species, camels, domestic and aquatic animal)	2	2
	205	Advanced Andrology Specific courses (in ruminants, equine species, camels, and domestic and aquatic animals)	2	2
	206	Obstetrics, specific courses (in ruminants, horses, camels, and domestic and aquatic animals)	2	3
	207	Artificial insemination specific courses (in ruminants, horses, camels, domestic and aquatic animals)	2	3

	208	Reproduction and immunity	2	2
	Second: Doctorate-:			
	209	Biotechnology in reproduction, specific courses (in ruminants, equine species, camels, and domestic and aquatic animals)	2	2
	210	Reproductive evaluation of farms	2	1
	211	Reproduction in wild animals	2	2
	212	Reproduction in aquatic animals	2	2
	213	Genetic engineering for reproduction	2	2

Subject	**Course number**	**The Course**	**The number of hours**	
Surgery, anesthesia and radiology			**Lecture**	practical
	First: Master's:-			
	214	General Surgery (Advanced)	2	3
	215	Special surgery (organs)	2	3
	219	Experimental surgery	1	2
	220	Anesthesia	1	2
	221	Radiology and ultrasound	1	2
	223	Endoscopic Surgery	1	3
	Second: Doctorate-:			
	216	Eye, nose, ear and throat surgery	1	2
	217	Gastrointestinal surgery	1	2

	218	Leg surgery, hoof and hoof diseases	2	2
	222	Urinary and reproductive system surgery	1	2
	224	Lasers and their uses in veterinary surgery	1	2
	225	Modern methods of surgical diagnosis using CT scan and MRI	1	3

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Diseases of birds and rabbits	First: Master's:-			
	227	Bacterial poultry diseases	2	2
	228	Viral poultry diseases	2	2
	229	Fungal diseases of poultry	2	2
	231	Nutritional deficiency diseases	1	2
	235	Rabbit diseases (advanced)	2	2
	236	Viral diseases of rabbits	1	2
	239	Nutritional deficiency diseases in rabbits	1	2
	Second: Doctorate-:			
	226	Poultry diseases (advanced)	2	2
	230	Parasitic diseases of poultry	2	2

	232	Specific bird diseases (chickens, ducks, quail, turkeys, ostriches, wild and migratory birds, ornamental birds)	3	3
	233	Laboratory diagnosis of poultry diseases	2	2
	234	Preventive vaccines for poultry	2	2
	237	Parasitic diseases of rabbits	2	2
	238	Bacterial diseases of rabbits	2	2

Subject	Course number	The Course	The number of hours	
Animal and poultry health and the environment			Lecture	practical
	First: Master's:-			
	240	Farm Animal Health (Advanced)	2	2
	241	Poultry Health (Advanced)	2	2
	242	Environmental health and pollution	2	3
	243	Control of epidemic diseases	2	2
	244	Resistance to rodents and disease vectors	2	2
	246	Animal housing health (specific courses in livestock housing/horse housing/poultry housing/rabbit housing/domestic animal housing/laboratory animal housing)	2	2
	247	Disinfectants and disinfection	2	2
	Second: Doctorate-:			
	245	Pesticides and public health	2	2

	248	Study of the occurrence and spread of diseases/epidemiology (specific courses in: animal epidemiology - bird epidemiology)	2	2
	249	Heavy metals and public health	2	2
	250	Veterinary health systems	2	2

Subject	Course number	The Course	The number of hours	
Veterinary genetics and genetic engineering			Lecture	practical
	First: Master's:-			
	259	Cytological inheritance	2	1
	260	Molecular genetics and genetic engineering	2	1
	261	Physiological and pharmacogenetics	2	1
	262	Radiological and chemical genetics	2	2
	263	Poultry genetics	2	2
	265	Fish genetics	2	1
	Second: Doctorate-:			
	264	Inheritance of microorganisms	1	2
	266	Animal disease genetics and immunity	2	1
	267	Behavior inheritance	1	1

	268	Inheritance of mutations and environmental pollution	2	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
Common diseases	First: Master's:-			
	252	The role of rodents and wild animals in transmitting common diseases	2	2
	253	The role of birds in transmitting common diseases	2	2
	254	The role of fish in transmitting common diseases	2	2
	256	The role of insects in transmitting common diseases	2	2
	Second: Doctorate-:			

	251	Common Diseases “Advanced ”(specific courses in: bacterial and fungal diseases - viral diseases - parasitic diseases – rickettsia)	2	2
	255	Common foodborne bacterial and viral diseases	2	2
	257	Immune response to human exposure to common diseases	2	2
	258	Common occupational diseases for veterinarians	2	2

Subject	Course number	The Course	The number of hours	
Animal breeding and production			Lecture	practical
	First: Master’s:-			
	270	Poultry breeding and production	2	2
	271	Fish breeding and production	2	1
	272	Breeding and production of dairy cattle	2	2
	274	Breeding and production of sheep and goats	2	2
	275	Rabbit breeding and production (advanced)	2	2
	280	Clan inheritance (advanced)	2	1
	Second: Doctorate-:			
	269	Animal breeding and production	2	2
	273	Breeding and production of beef cattle	2	2

	276	Breeding and production of domesticated birds (ostriches, quail, turkeys, ducks, geese)	2	2
	277	Genetic improvement	2	1
	278	Wool production and technology	2	1
	279	Breeding and production of horses - buffalo - camels	2	2

Subject	Course number	The Course	The number of hours	
Biostatistics			Lecture	practical
	First: Master's:-			
	281	Biostatistics (advanced)	2	2
	282	Design experiments	2	2
	Second: Doctorate-:			
	283	Computer and information processing	2	2

Subject	**Course number**	**The Course**	**The number of hours**	
Veterinary economics			Lecture	practical
	First: Master's:-			
	285	Economics of dairy farms	2	2
	287	Economics of poultry production farms	2	2
	289	Feasibility studies	2	1

	Second: Doctorate-:			
	284	Economics of livestock production farms and marketing	2	2
	286	Economics of meat production farms	2	2
	288	Economics of fish farms	2	1

Subject	Course number	The Course	The number of hours	
			Lecture	practical
illnesses Fish and their care	First: Master's:-			
	291	Fish diseases (advanced)	2	2
	292	Fish farms	2	2
	296	Diseases caused by pollution and chemical poisoning	1	2
	297	Laboratory diagnostic methods for diseases of fish and crustaceans	1	2
	Second: Doctorate:-			
	290	Fish biology	2	2
	293	Breeding and caring for fish	2	2
	294	Immunodeficiency diseases in fish	1	2
	295	Nutritional deficiency diseases in fish	1	2