

The current study plan of Bachelor degree

The general framework of the study plan:

Total numbers of hours	<u>135 hr</u>
1. The University requirements	39 hr
• Preparatory year	31 hr
• 4 Islamic cultures courses	8
2. The College requirements	20 hr
• Basic Sciences	14
PHYS 101	General Physics (1)
CHEM 101	General Chemistry (1)
ZOOL 103	Principles of General Zoology
BOT 102	Botany
• Free courses	6
3. The Department (specialty) requirements	76 hr
With cooperative training (APRT)	
• Compulsory requirements	68 hr
• Elective (Optional) requirements	8 hr

Or with **alternative** cooperative training (APR)

The department may replace the ANPR 400 cooperative training course by ANPR 402 field training course + 9 hours of elective (optional) courses from inside the department). The requirements became:

- Compulsory requirements 59 hr
- Elective (Optional) requirements 17 hr

Compulsory & elective (optional) courses of the Department (specialty)

Compulsory courses: from both inside & outside the department

From Inside the Department			
Code & No.	Course title	Credits	Requisites
ANPR 106	Introduction to animal Production Systems	2(2+0)	----
ANPR 220	General Physiology	3(3+0)	ZOOL 103
ANPR 226	Breeding and Genetic Improvement	3(2+1)	STAT 100
ANPR 254	Farm Animal Physiology Laboratory	1(0+1)	ANPR 220
ANPR 258	Poultry Production	3(2+1)	ANPR 106
ANPR 320	Dairy Cattle Production	2(2+0)	ANPR 106 + ANPR 220
ANPR 322	Reproduction in Farm Animals	2(1+1)	ANPR 106
ANPR 326	Sheep and Goat Production	2(2+0)	ANPR 106
ANPR 328	Animal and Poultry Health	3(2+1)	ANPR 220
ANPR 334	Poultry Nutrition	2(2+0)	BCH 101+ ANPR 220
ANPR 336	Practical Animal and Poultry Production	1(0+1)	ANPR 106
ANPR 338	Ruminant Nutrition	3(2+1)	BCH 101+ ANPR 220
ANPR 400	Cooperative Training *	12(0+12)	ANPR 336
ANPR 458	Meat Production	2(1+1)	ANPR 106 + ANPR 220
ANPR 460	Feed & Feed Formulation for Poultry & Ruminants	2(1+1)	ANPR 338 + ANPR 334
ANPR 466	Modern Technology in Animal Breeding	2(2+0)	ANPR 226
ANPR 468	Research and Seminar	1(0+1)	ANPR 106
Total		46 hr	
* The department may replace the ANPR 400 cooperative training course by ANPR 402 field training course + 9 hours of optional courses from inside the department)			
From Outside the Department			
BCH 101	General Biochemistry	4(3+1)	---
CHEM 108	Introduction to Organic Chemistry	4(3+1)	CHEM 101
STAT 100	Introduction to Statistics	3(2+1)	MATH 150
AGEC 217	Agricultural Organization Management	3(2+1)	---
PPS 201	Principles of Plant Production	3(2+1)	BOT 102
AEE 201	Principles of Agricultural Extension , missing ,	2(2+0)	---
AGEC 205	Principles of Agricultural Economics	3(3+0)	MATH 150
	Total	22 hr	--
Requirements of Basic Science			
PHYS 101	General Physics (1)	4(3+1)	---
CHEM 101	General Chemistry (1)	4(3+1)	---
ZOOL 103	Principles of General Zoology	3(2+1)	---
BOT 102	Botany	3(2+1)	---
	Total	14 hr	

Optional Courses: (at least 8 hours)

From Inside the Department			
Code & No.	Course title	Credits	Requisites
ANPR 252	Comparative physiology of farm animal	2(2+0)	ANPR 220
ANPR 256	Camel production	2(2+0)	ANPR 106

ANPR 260	Animal production:& Poultry housing: Environment Control	2(1+1)	ANPR 106
ANPR 318	poultry production (turkey, water fowls, quail, ostrich and rabbits	2(2+0)	ANPR 106
ANPR 346:	Horse production	2(2+0)	ANPR 106
ANPR 348:	Fish production	2(2+0)	ANPR 106
ANPR 402:	Field Training	3(0+3)	----
ANPR 452	Poultry breeding	2(2+0)	ANPR 226 + ANPR 258
ANPR 456	Dairy breeding	2(2+0)	ANPR 226 + ANPR 320
ANPR 462	Animal diseases	2(1+1)	ANPR 328
ANPR 464	Poultry diseases	2(1+1)	ANPR 328
From Outside the Department			
FSN 202	Principles of food science	2(2+0)	---
FSN 206	Principles of human nutrition	2(2+0)	BCH 1011
AGEC 209	Agriculture and food marketing	3(3+0)	AGEC 205
AEE 301	Extension applications	2(1+1)	---
PPS 348	Forage crop production	2(1+1)	PPS 201
AGEN 220	Mechanization of farm operations	2(1+1)	PHYS 101
Total		36	--

Courses Plan of Bachelor Degree in Animal Production

First and Second Semesters (Preparatory Year)

First Semester

Code & No.	Course Title	Credits
CT 140	IT Skills	3
MATH 140	Introduction to Mathematics	2
MC 140	Communication Skills	2
ENGL 140	English (1)	8
TOTAL		15

Second Semester

Code & No.	Course Title	Credits
ENT 101	Entrepreneurship	1
CI 140	Learning, Thinking & Research	3
MATH 150	Differential Calculus	3
CHS 150	Health & Fitness (2)	1
ENGL 150	English (2)	8
TOTAL		16

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Third Semester

Code & No.	Course Title	Credits
STAT 100	Introduction to Statistics	3(2+0)
CHEM 101	General Chemistry (1)	4(2+1)
ZOOL 103	Principles of General Zoology	3(2+1)
AEE 201	Principles of Agricultural Extension , missing ,	2(2+0)
AGEC 205	Principles of Agricultural Economics	3(3+0)
IC 101	Principles of Islamic Culture	2(2+0)
TOTAL		17

Fourth Semester

Code & No.	Course Title	Credits
PHYS 101	General Physics (1)	4(3+1)
BOT 102	Botany	3(2+1)
ANPR 106	Introduction to animal Production Systems	2(2+0)
CHEM 108	Introduction to Organic Chemistry	4(3+1)
IC 102	Family in Islam	2(2+0)
--	Free Course	2
TOTAL		17

Fifth Semester

Code & No.	Course Title	Credits
BCH 101	General Biochemistry	4(3+1)
PPS 201	Principles of Plant Production	3(2+1)
AGEC 217	Agricultural Organization Management	3(2+1)
ANPR 220	General Physiology	3(3+0)
ANPR 226	Breeding and Genetic Improvement	3(2+1)
ANPR 254	Farm Animal Physiology Laboratory	1(0+1)
IC 103	Economic system in Islam	2(2+0)
TOTAL		19

Sixth Semester

Code & No.	Course Title	Credits
ANPR 258	Poultry Production	3(2+1)
ANPR 320	Dairy Production	2(2+0)
ANPR 322	Reproduction in Farm Animals	2(1+1)
ANPR 326	Sheep and Goat Production	2(2+0)
ANPR 328	Animal and Poultry Health	3(2+1)
ANPR 334	Poultry Nutrition	2(2+0)
ANPR 336	Practical Animal and Poultry Production	1(0+1)
ANPR 338	Ruminant Nutrition	3(2+1)
---	Free Course	2
TOTAL		20

Seventh Semester

Code & No.	Course Title	Credits
ANPR 400	Cooperative Training	12 (0 +12)
TOTAL		12

OR Alternative

ANPR 402	Field Training	3(0 +3)
---	And elective (optional) Courses, inside the department	9
TOTAL		12

Eighth Semester

Code & No.	Course Title	Credits
ANPR 458	Meat Production	2(1+1)
ANPR 460	Feed & Feed Formulation for Poultry & Ruminants	2(1+1)
ANPR 466	Modern Technology in Animal Breeding	2(2+0)
ANPR 468	Research and Seminar	1(0+1)
IC 104	Islamic Political System	2(2+0)
---	Free Course	2
---	Elective (Optional) Courses	8
TOTAL		19

Course Description:

ANPR 106: Introduction to Animal Production Systems 2 (2+0)

Farm animals and poultry breeds, Development of farm animals and poultry industry; Management of farm animals and poultry; Housing of farm animals and poultry; milk, meat and egg production; Factors affecting production systems.

Reference:

الإنتاج الحيواني. تأليف: د. كامل عبد العليم. الناشر: مكتبة المعارف الحديثة- الإسكندرية- مصر، 1996 م.
Modern Livestock & Poultry Production (2009). James R. Gillespie and Frank Flanders (Editors).
Scientific Farm Animal Production (9th Edition) (2007). Robert E. Taylor and Tom G. Field (Editors).

Prerequisite: N/A

ANPR 220 General Physiology 3 (3+0)

Cells and tissues; Homeostasis; Nervous system and nerve impulses; Signal transduction; Muscles; Digestion, absorption and metabolism; Renal physiology and fluid regulation; Cardiovascular system; Respiration; Hormones; Thermoregulation.

Reference:

علم الفسلجة البيطرية. تأليف: د. خير الدين محي الدين، د. وليد حميد يوسف. الناشر: جامعة البصرة- العراق 1987 م؛
فسيولوجيا الحيوان. تأليف: مدحت حسين خليل محمد. الناشر: دار الكتاب الجامعي، دولة الإمارات العربية المتحدة، العين
2005.

Prerequisite: ZOOL

ANPR 226: Breeding and Genetics Improvement 3 (2+1)

Application of Mendelian genetics in farm animals; Probability and tests of genetic hypotheses; Principles of population genetics; Genetic value and selection methods; Genetic relationships and inbreeding; Genetics of quantitative traits; Estimation of breeding value; Genetic improvement methods; Mating systems.

Reference:

تربية الحيوان. تأليف: د. صلاح جلال، د. حسن كرم. الناشر: دار المعارف- القاهرة- مصر، 2003 م.

Prerequisite: STAT 100

ANPR 252: Comparative Physiology of Farm Animals 2 (2+0)

Comparison of anatomical and functional characteristics of respiratory, reproductive, digestive and other systems in farm animals and avian species.

Reference:

علم وظائف الأعضاء. تأليف: د. عبدالله زايد، د. عبد الرحمن مبارك. الناشر: جامعة عمر المختار- البيضاء- ليبيا، 1995 م.
Cunningham's Textbook of Veterinary Physiology, 5e (2012). Bradley G. Klein (Editor).

Prerequisite: ANPR 220

ANPR 254: Farm Animals Physiology Laboratory 1 (0+1)

Microscope applications; Identification of different cutaneous receptors; Anatomy of muscular, digestive, reproductive, urinary and respiratory systems; Blood analysis; Spectrophotometry; Data acquisition systems.

Reference:

تجارب عملية في الفزيولوجيا البيطرية. تأليف: د. عادل البدري، د. حسن عبد الرحمن، د. علي القرعاوي. الناشر: جامعة الملك
سعود- الرياض- السعودية، عام 2002 م.

Laboratory Manual for Comparative Veterinary Anatomy & Physiology (Veterinary Technology) by Phillip E. Cochran (Spiral-bound - 2010).

Prerequisite: ANPR 220

ANPR 256: Camel Production 2 (2+0)

Geographic distribution of camels; Characteristics of camel breeds; Adaptation of dromedaries to desert life; Importance of camels in milk and meat production; Camel management and enhancement of production.

Reference:

الإبل في الوطن العربيز تأليف: د. عبدالله زايد، د. غسان غادري، د. عاشور شريحة. الناشر: جامعة المختار- البيضاء- ليبيا، 1991 م؛ محمد عمر الطويرقي (2011) الإبل الحمائل سلالات الإبل حياة الإبل، مؤسسة الجريسي للتوزيع والاعلان، المملكة العربية السعودية؛ محمد مصطفى مراد (2008) الوجيز في امراض الإبل، مكتبة الجيل الجديد اليمن، كتاب العربية زراعة وانتاج حيواني؛ فهد مبارك العرجي (2009) مزاين الإبل معايير ومواصفات، مؤسسة الجريسي للتوزيع والاعلان المملكة العربية السعودية؛ احمد على كامل (2008) تربية الجمال، منشأة المعارف للطباعة والنشر والتوزيع مصر.

Prerequisite: ANPR 106

ANPR 258 :Poultry Production 3 (2+1)

Introduction to poultry industry; Principles of poultry husbandry and production; Poultry housing and equipment; Hatchery practice and management; Broiler management; Layer and breeder management; Production records and analyses; Poultry health management.

Reference:

تربية الدواجن ورعايتها (2009). د. سامي علام (المؤلف). مكتبة الأنجلو المصرية، مصر.
- دليل- الإنتاج التجاري للدجاج - الجزء الثاني - تأليف : ماك نورث (مترجم) الناشر: الدار العربية للنشر والتوزيع . القاهرة - مصر. 1992 م.

Prerequisite: ANPR 106

ANPR 260: Animal Production and Poultry Housing: Environment and Control 2 (1+1)

Thermal insulation in farm animals; Heat balance; Thermal requirements of farm animals; Behavioral and physiological responses to changes in ambient temperature and humidity; Calculation of heat production; Air properties; Psychometric charts; Gas pollutants and their impact on animal production; Ventilation, cooling and heating systems in farm animals and poultry farms; Importance of automated control systems applications in modern farm animals production.

Reference:

تهوية المنشآت الزراعية. تأليف: ميلو هيليكسون، جون ووكر، (مترجم). الناشر: جامعة الملك سعود- الرياض- السعودية، 1997 م؛ محمد، مدحت حسين خليل، أساسيات علوم الحياة، دار الكتب الجامعية الإمارات العربية المتحدة، العين 2001 الطبعة الأولى.

Environmental Physiology of Livestock, 1st edition (2012). Collier R. J., Collier, J. L. (Editors). Wiley-Blackwell, John Wiley & Sons, Ltd. Publication.

Prerequisite: ANPR 106

ANPR 318: Poultry Production (Turkey, Water Fowls, Quail, Ostrich and Rabbits) 2 (2+0)

Introduction to of secondary poultry industry and its development; Factors affecting fertility and hatchability in turkey and other species; Reproduction management in rabbits; Incubation and management systems; Genetic and environmental factors affecting performance efficiency; Rearing stocks; Housing system.

Reference:

الطيور الداجنة والأرانب. تأليف : سامي علام. الناشر: مكتبة الأنجلو المصرية. الطبعة السادسة، القاهرة - مصر 2007 م.

Prerequisite: ANPR 106

ANPR 320: Dairy Cattle Production 2 (2 +0)

Dairy production in Saudi Arabia; Management of heifers, milking cows and dry cows; Sire management; Principles of dairy cattle breeding and genetic improvement; Herd management and

records system; Reproduction management; Mammary glands; Milking programs; Health management.

Reference:

أبقار البن و اللحم . مترجم , الناشر: الدار العربية للنشر و التوزيع- 1999؛ إنتاج أبقار الحليب. الناشر: جامعة القدس المفتوحة- 2002.

Prerequisite: ANPR 106 + ANPR 220

ANPR 322: Reproduction in Farm Animals 2 (1+1)

Introduction; Embryogenesis and differentiation of reproductive systems; Female and male reproductive systems; Hormones and reproduction; Puberty and estrous cycle in farm animals; Fertilization; Factors affecting fertility; Measurement and improvement of reproductive performance; management of stock reproduction.

Reference:

Reproduction in Farm Animals by E. S. E. Hafez and B. Hafez (2000).

فسيولوجيا التناسل والتلقيح الاصطناعي. تأليف: د. حسن المبروك، د. محمد بارحال. الناشر: الدار الجماهيرية للنشر والتوزيع والسجلات- ليبيا، 1989م.

Prerequisite: ANPR 106

ANPR 326: Sheep and Goat Production 2 (2 + 0)

Exotic and local breeds for meat, wool, hair and milk production; Range production systems; Intensive production; Environmental and genetic factors affecting production; Economic importance of sheep and goat products; Management of ewes and does; Management of rams and bucks; Raising lambs and kids; Weaning systems; Housing systems.

Reference:

رعاية وإنتاج الأغنام. تأليف: د. محمد أحمد أبو هيف. الناشر: دار المريخ للنشر، الرياض- السعودية، 1995 م.

Prerequisite: ANPR 106

ANP 328: Animals and Poultry Health 3 (2+1)

Signs of health and disease; Predisposing factors of disease; Infectious agents; Sources of infection; Transmission and spread of infection; Epidemiological triangle; General patterns of infectious diseases; Epizootic diseases of farm animals and poultry; zoonotic diseases; principles of disease control.

Reference:

Animals, Diseases, and Human Health: Shaping Our Lives Now and in the Future (2011). Radford G. Davis (Editor)

أمراض الدواجن. د. منصور فارس، د. سعود بن إبراهيم المفرج. الناشر: وزارة الزراعة- الرياض- السعودية ، 2008 م؛ أمراض الحيوان في المناطق المدارية، مترجم. تأليف: م. سيويل، د. رولكسبي، الناشر: جامعة الملك سعود- الرياض- السعودية، 1999 م.

Prerequisite: ANP 220

ANPR 338: Ruminant Nutrition 3 (2 +1)

Classification of ruminants; Rumen microbiology; Factors affecting rumen ecology; Fermentation of carbohydrates, proteins and lipids; Vitamins and minerals metabolism; Digestion of carbohydrates, proteins and lipids; Nutrients requirements of ruminants; Malnutrition and metabolic disorders in ruminant.

Reference:

فسلجة الهضم وتغذية المجترات- الجزء الثاني- التغذية. تأليف: دي. سي. شرش (مترجم)، الناشر: جامعة البصرة- البصرة- العراق، 1986 م.

Basic Animal Nutrition and Feeding, 5th edition (2005). W.G. Pond, D.C. Church, K.R. Pond, P.A. Schoknecht (Editors).

Prerequisite: BCH 101 + ANPR 220

ANPR 334: Poultry Nutrition 2 (2+0)

Nutrients digestion and metabolism; Feed stuffs; Nutrient requirements (energy, protein, vitamins and minerals) of broilers, layers and breeders; Feeding programs for broiler, layers and breeders; Poultry nutrition in hot regions.

Reference:

- دليل- الإنتاج التجاري للدجاج - الجزء الأول - تأليف : ماك نورث (مترجم) الناشر: الدار العربية للنشر والتوزيع . القاهرة - مصر 1992م.

Nutrition of the Chicken, 4th Edition (2001). Publisher: University Books, Canada

Prerequisite: BCH 101 + ANPR 220

ANPR 336: Practical Animal and Poultry Production 1 (0+1)

Introduction to farm animals and poultry; Routine management practices in poultry and large animals farms; incubators and hatcheries; Milk parlor and milking; Production records keeping and analysis; waste management in livestock farms.

Prerequisite: ANPR 106

ANPR 346: Horse Production 2 (2+0)

Introduction; Equine breeds; Health signs; Growth phases; The digestive system; Equine nutrition; Pregnancy and management of pregnant mare; Parturition; Foals management; Equine diseases.

Reference:

الحصان العربي تأليف : نذير الزيان، الناشر: دار الألباب - دمشق- سوريا، 1992 م.

Equine Reproduction, 2nd Edition (2011). Angus O. McKinnon, Edward L. Squires, Wendy E. Vaala, Dickson D. Varner (Editors). ISBN-13: 978-0813819716.

Equine Science (2012). Rick Parker (Editor). ISBN: 978-1111138776.

Prerequisite: ANPR 106

ANP 348: Fish Production 2 (2+0)

Economic importance of fish in the Kingdom; Fish species; Fish reproduction; Fish nutrition and management; Factors affecting fish production; Cooling and storage of fish.

Reference:

Handbook of Fish Biology and Fisheries (2002). Paul J. B. Hart (Editor), Blackwell Pub.

Prerequisite: ANPR 106

ANPR 402: Field Training 3 (0 +3)

The course is designed to prepare the students and involve them in practical field activities in private and governmental animal production premises in order to acquire skills in the fields of farm animals and poultry production inside and/or outside the department.

Prerequisite: N/A

ANPR 400: Cooperative Training 12 (0 +12)

The course is designed to prepare the students and involve them in practical field activities in private and governmental animal production premises in order to acquire skills in the fields of farm animals and poultry production outside the Department.

Prerequisite: ANPR 336

ANPR 452: Poultry Breeding 2 (2+0)

Origin and classification of the fowl; Chromosomal map; Gametogenesis; Factors affecting embryogenesis; Qualitative and quantitative traits and their genetic basis; Characteristics of

broiler and layer chickens; Selection methods; Mating systems; Grandparent and parent production; Genetic resistance.

Reference:

تربية وتحسين الدواجن تأليف: د. ماهر حسب النبي خليل، د. إبراهيم حمد الحميدان. الناشر: جامعة الملك سعود، 2004 م.

Prerequisite: ANPR 226 + ANPR 258

ANPR 456: Dairy Breeding 2 (2+0)

Basic concepts of dairy breeding; Genetic relationships and inbreeding; Introduction to quantitative traits; Genetic variation; Prediction of breeding values and heritability; Selection indices; Animal models; Prediction of genetic progress; Comparison of selection programs; Biotechnology in dairy breeding, Selected topics.

Reference:

أبقار اللبن، المبادئ، التطبيقات، المشاكل والأرباح. تأليف: باث، دكنسون، تكرر، ألمان، ترجمة زايد وأحمد. الناشر: جامعة عمر المختار- البيضاء- ليبيا، 1994م؛ ؛ دليل رعاية الأبقار، الناشر: المركز العربي لدراسات المناطق الجافة و الأراضي القاحلة أكساد- 1999.

Prerequisite: ANPR 226 + ANPR 320

ANP 458: Meat Production 2 (1 +1)

International systems for red meat production; Growth performance in meat producing animals; Development of muscular and adipose tissues; Factors affecting meat production; Growth promoters; Carcass composition; Factors affecting meat characteristics; Meat cuts; Meat handling and storage.

Reference:

إنتاج ماشية اللحم. تأليف: د. فؤاد عبد اللطيف عبد الكريم. الناشر: وزارة التعليم العلي- جامعة البصرة، 1990 م.
Meat Science, 2nd Edition, An Introductory Text (2010). Author: P D Warriss, Publishing House: CABI, ISBN: 978-1-84593-593-1

The Science of Meat Quality (2013). Edited by: Chris R. Kerth, Publishing House: Wiley, J., ISBN: 9781118530733

Prerequisite: ANPR 106 + ANPR 220

ANPR 460: Feed and Feed Formulation for Poultry and Ruminants 2 (1+1)

Feed stuffs; Technology of feed manufacturing; Least cost feed formulation; Feed formulation software programs; Feed mixing and storage; Poultry feed formulation; Large animals feed formulation; Quality control standards; Feed additives regulations.

Reference:

تغذية الحيوان. تأليف: مكدونالد، ادواردس، كرينهال (مترجم): الناشر: وزارة التعليم العالي-مؤسسة المعاهد الفنية-العراق، 1985 م.

Animal Feeding and Nutrition (2013). Jurgens Marshal H., et al. (editors), Kendall Hunt Publishing.

Animal Feeds, Feeding and Nutrition, and Rration Evaluation. First edition. (2005). David Tisch (Editor), Cengage learning publishing.

Prerequisite: ANP 334 + ANP 338

ANPR 462: Animal Diseases 2 (1+1)

Definition of disease; Aetiology; Infectious disease; Malnutrition and metabolic disorders; reproductive diseases; Ecto- and endo-parasites; Principles of farm animals diseases diagnosis; zoonotic diseases; Control of farm animals diseases.

Reference:

Veterinary Infection Prevention and Control (2011). Linda Caveney, Barbara Jones and Kimberly Ellis (Editors).

أمراض الحيوان في المناطق المدارية، مترجم. تأليف: م. سيويل، د. رولكسي، الناشر: جامعة الملك سعود- الرياض- السعودية، 1999 م.

Prerequisite: ANP 328

ANPR 464: Poultry diseases 2 (1+1)

General introduction; Definition of disease; Aetiology; Routes of infections transmission in poultry farms; Diseases caused by: viruses; bacteria; mycoplasma, fungi, protozoa and metazoan; Ecto- and endo-parasites; Nutritional disorders; Principles of poultry disease diagnosis; Control of poultry diseases.

Reference:

Poultry Diseases, 6e (2007). Mark Pattison, Paul McMullin, Janet M. Bradbury and Dennis Alexander (Editors)

أمراض الدواجن. د. منصور فارس، د. سعود بن إبراهيم المفرج. الناشر: وزارة الزراعة- الرياض- السعودية، 2008 م.

Prerequisite: ANP 328

ANPR 466: Modern Technology in Animal Breeding 2 (2 +0)

Introduction; Applications of molecular genetics in selection ; Marker assisted selection; Cloning, Quantitative trait loci; Gene transfer; Transgenic animals; In vitro fertilization; Sex control; Embryo splitting.

Reference:

التقانة الحيوية الزراعية. منظمة الأغذية والزراعة للأمم المتحدة- روما 2004.

Genetic Engineering in Livestock: New Applications and Interdisciplinary Perspectives (2010). Engelhard Margaret, Hagen Kristin, Boysen Matthias (editors). Springer, UK.

Prerequisite: ANPR 226

ANPR 468: Research and Seminar 1 (0+1)

Presentation and discussion of the results of a published research paper or a self-study in a specialized aspect of farm animals or poultry production in front of the staff members of the Department.

Prerequisite: ANPR 106