

## Course Syllabus

1	Course title	Ruminant nutrition
2	Course number	0602485
3	Credit hours	3
	Contact hours (theory, practical)	(3,0)
4	Prerequisites/corequisites	Principles of Animal productions (602101)
5	Program title	B.Sc. Animal Production
6	Program code	602
7	Awarding institution	The University of Jordan
8	School	Agriculture
9	Department	Animal Production
10	Course level	4 <sup>th</sup> year
11	Year of study and semester (s)	2 <sup>nd</sup> semester, 2020/2021
12	Other department (s) involved in teaching the course	None
13	Main teaching language	English
14	Delivery method	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	Issuing/Revision Date	28/02/2022

### 17. Course Coordinator:

Name: <b>Dr. Rabie Irshaid</b>	Contact hours: <b>11.30 – 16.00 (Sun., Tue., Thu.)</b> , Students are also welcomed at any time but they are encouraged to schedule meetings with me a few hours or 1-2 days in advance.
Office number: <b>2 - Green house</b>	
Email: <b><a href="mailto:r.irshaid@ju.edu.jo">r.irshaid@ju.edu.jo</a></b>	
Phone number: <b>22418</b>	

### 18. Other instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:

## 19. Course Description:

The course will introduce the students to ruminant's specificity in consuming roughage feeds. It will also introduce the students to feed classification: cereal grains, by-products, protein feeds, grasses, legumes. It will also deal with balancing rations and feeding sheep, goats, and dairy cattle.

## 20. Course aims and outcomes:

### A- Aims:

The purpose of this course is to establish an understanding of feeding ruminants, major feed sources, and to distinguish clearly the method of building feed rations.

### B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

Program ILOs*	ILO (1)	ILO (2)	ILO (3)	ILO (4)	ILO (5)	ILO (6)	ILO (7)	ILO (8)
<b>Course SLOs</b>								
(1) know about rumen and its contents and function	X							
(2) distinguish main source and types of feed and differentiate between them.	X		X					X
(3) understand concept of roughage and illustrate their different types.	X							
(4) understand concepts of ration formulation.	X	X						

### **\* Program ILOs:**

ILO (1): Demonstrate a deep understanding of the basic principles in the various areas of livestock production; including nutrition, physiology, genetics, health and management.

ILO (2): Apply the acquired knowledge in various areas of livestock production.

ILO (3): Utilize critical thinking and logical reasoning in addressing issues related to livestock production.

ILO (4): Communicate effectively with a wide range of related stakeholders and provide appropriate extension services.

ILO (5): Apply the principles of public safety and environmental protection.

ILO (6): Acquire and apply practical skills along with keeping up with recent advances in livestock production.

ILO (7): Identify basic principles of research methodology and evidence-based decision making.

ILO (8): Abide by the professional, ethical and legal considerations relevant to the livestock production.

## 21. Topic Outline and Schedule:

Week	Lecture	Topic	Intended Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Rumen and its microbes	1	Face to Face	MS Teams + Moodle	Synchronous	quizzes	Chapter 8 in McDonald et al., 2011.
	1.2							
	1.3							
2	2.1	Rumen and its microbes	1	Face to Face	MS Teams + Moodle	Synchronous	quizzes	Chapter 8 in McDonald et al., 2011.
	2.2							
	2.3							
3	3.1	Feed classification: 1. <b>Concentrates:</b> Energy Sources	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 22 in McDonald et al., 2011. - Section 2, no.21 in Perry et al., 2004 Chapter 2 in Cheeke, 2005.
	3.2	1.1 Cereals: General structure of grains - Corn (maize) - Sorghum - Wheat - Barley - Oats						
	3.3							
4	4.1	1.1 Cereals: General structure of grains - Corn (maize) - Sorghum - Wheat - Barley - Oats	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 22 in McDonald et al., 2011. - Section 2, no.21 in Perry et al., 2004 Chapter 2 in Cheeke, 2005.
	4.2							
	4.3							
5	5.1	1.2 Cereal milling by-products - Wheat milling by-products - Corn mill feeds - Rice bran - Grain Milling By-products	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 2 & 3 in Cheeke, 2005. - Section 2, no.21 in Perry et al., 2004
	5.2							
	5.3							

6	6.1	1.3 Other concentrate energy Feeds: - Roots and Tubers - Food Processing and Industrial By-products	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 2 &3 in Cheeke, 2005. - Section 2, no. 21 in Perry et al., 2004.
	6.2							
	6.3							
7	7.1	1.4 Grain overload of Ruminants						
	7.2							
	7.3							
8	8.1	<b>2. Protein Sources:</b> 2.1 Oil seed meals - Soybean meals - Cottonseed meal - Rapeseed and Canola meal	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 4 in Cheeke, 2005. - Section 2, no. 22 in Perry et al., 2004. - Chapter 23 in McDonald et al., 2011.
	8.2							
	8.3							
9	9.1	- Peanut meal - Sunflower meal - Safflower meal - Sesame meal - Coconut meal & Palm kernel meal						
	9.2							
	9.3							
10	10.1	2.2 Grain legumes - Soybean - Dry beans - Faba beans - Lupines - Field peas and lentils	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 4 in Cheeke, 2005. - Section 2, no. 22 in Perry et al., 2004. - Chapter 23 in McDonald et al., 2011.
	10.2							
	10.3							
11	11.1	2.3 Milling by-products 2.4 Animal protein sources - Fish meal - Nitrogen sources for ruminants - NPN - 2.5 New & Unconventional Sources of protein - Leaf protein concentrate - Singh cell protein.	2	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 4 in Cheeke, 2005. - Section 2, no. 22 in Perry et al., 2004. - Chapter 23 in McDonald et al., 2011.
	11.2							
	11.3							
12	12.1	<b>3. Roughage:</b> 3.1 Detergent system of forage analysis 3.2 Assessment of forage quality 3.3 Forage of pasture, silage and hay 3.4 Hay and Hay making 3.5 Dehydrated forage 3.6 Silage	3	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 5 in Cheeke, 2005. - Section 2, no. 23, 27, 28 in Perry et al., 2004. - Chapter 18 & 19 & 20 in McDonald et al., 2011.
	12.2							
	12.3							

13	13.1	<b>4. Ration balancing with forages</b> - Balancing rations with the aid of computers.	4	Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	- Chapter 11 & 12 in Cheeke, 2005. - Section 3, no. 36-54 in Perry et al., 2004.
	13.2							
	13.3							
14	14.1			Face to Face	MS Teams + Moodle	Synchronous	Homeworks & quizzes	
	14.2							
	14.3							

## 22. Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Quizzes & Homeworks	20%	Different topics of the course	See the students learning outcomes (SLOs) table	Throughout the semester	Face to Face
Midterm Exam	30%	Topics covered until the end of week 9		9 (26-4-2022)	Face to Face
Final Exam	50%	All covered topics		16 (According to admission and registration unit)	Face to Face

## 23. Course Requirements

Students should have a computer, webcam, internet connection, account on a specific software/platform...etc.):

## 24. Course Policies:

### A- Attendance policies:

Each student is expected to take their own notes (part from the exam) and to attend class. Absence from lectures shall not exceed **15%**. Students are expected to attend all lectures but if a student is absent from class, it is his responsibility to get the material that was missed. You must get any handouts or notes from your classmates.

### **B- Absences from exams and submitting assignments on time:**

Exams will consist of **multiple choice and some Essay questions**. Exams will cover all material presented for each section. Make-up exams will only be provided for students with an excused absence and supporting documentation. The questions and/or format of any make-up exam may differ from that of the original exam. Scheduling of a make-up exam will vary depending upon available dates/times but **MUST** occur before the next-scheduled exam date.

### **C- Health and safety procedures:**

Students should follow the Jordanian government guide

### **D- Honesty policy regarding cheating, plagiarism, misbehavior:**

Academic dishonesty will **NOT** be tolerated. This includes cheating, fabrication or falsification, plagiarism, abuse of academic materials, complicity in academic dishonesty, falsifying grade reports, and misrepresentation to avoid academic work. For this course, evidence of any form of academic dishonesty will result in all involved students receiving zero points for any associated exam, or assignment

### **E- Grading policy:**

Quizzes & Homeworks	20%
Mid-exam	30%
Final Exam	50%
<b>Total Points</b>	<b>100%</b>

### **F- Available university services that support achievement in the course:**

Students account on E-learning, and Microsoft teams

## **25. References:**

### **A- Required book(s), assigned reading and audio-visuals:**

1. Perry, T.W., A.E. Cullison, R.S. Lowrey. 2004. Feeds and Feeding. 6th ed., Prentice Hall, Upper Saddle River, New Jersey.
2. Cheeke, P.R. 2005. Applied Animal Nutrition, Feeds and Feeding. 3<sup>rd</sup> edition. Prentice-Hall, Inc.
3. McDonald, P., R.A. Edwards, J.F.D. Greenhalgh, C.A. Morgan, L.A. Sinclair and R.G. Wilkinson. 2011. Animal Nutrition. 7th ed., Pearson, London.

B- Recommended books, materials and media:

1. National Research Council (2001) Nutrient Requirements of Dairy Cattle. 7th ed. National Academy Press, Washington, DC.
2. National Research Council (2007) Nutrient Requirements of Small Ruminants. National Academy Press, Washington, DC.

**26. Additional information:**

None

Name of Course Coordinator: <b>Dr. Rabie Irshaid</b>	Signature: -----	Date: 27/02/2022
Head of Curriculum Committee/Department: -----	Signature: -----	
Head of Department: -----	Signature: -----	
Head of Curriculum Committee/Faculty: -----	Signature: -----	