

Course Syllabus

1	Course title	Ruminant nutrition
2	Course number	0602782
3	Credit hours	3 hrs.
	Contact hours (theory, practical)	3 , 0
4	Prerequisites/corequisites	Not applicable
5	Program title	M.SC. in Animal Production
6	Program code	
7	Awarding institution	The University of Jordan
8	School	Agriculture
9	Department	Animal Production
10	Course level	Not applicable
11	Year of study and semester (s)	First semester 2021/2022
12	Other department (s) involved in teaching the course	None
13	Main teaching language	English
14	Delivery method	x <input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	Issuing/Revision Date	1/10/2021

17 Course Coordinator:

Name: Prof. Hosam Titi

Contact hours: 10-12 S, M, T, Thu

Office number:

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18 Other instructors: No

19 Course Description:

Advanced concepts in ruminant nutrition for the professional agricultural practicing; 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. Forage evaluation and energy systems for optimal production limits.

20 Course aims and outcomes:

A- Aims:

1. To provide a deep understanding and proper viewing for the main concepts of ruminant's nutrition.
2. To provide students with needed information about the role of rumen microorganisms in feed digestion and rumen development.
3. To illustrate the overall role of ruminant forestomach and variation in CHO, protein, and lipid metabolism.
4. To acquaint students with various components of ruminant diet intake, specifically forage ingredients.
5. Provide students with deep view about feed intake, feed quality and forage evaluation and preservation technology.
6. Acquaint students with recent topics in feed additives and metabolic disorders.

B- Students Learning Outcomes (SLOs):

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

Program SLOs* / SLOs of the course	SL O (1)	SL O (2)	SL O (3)	SL O (4)	SL O (5)	SL O (6)	SL O (7)	SL O (8)	SL O (9)	SL O (10)	SL O (11)	SL O (12)
Gain more illustrated information about the main concepts related to ruminant nutrition.		X						X				
Know what are the main ingredients used in ruminant nutrition and what they provide to the animal and how they are affect ruminant performance.	X	X			X							
Understand the role of rumen		X						X				

microorganisms in feed digestion.												
Develop an understanding of current research topics in ruminant nutrition worldwide.			X						X	X	X	
Gain more information about feed additives and their role in farm animal nutrition.			X	X		X						X
Gain more information about feeding sheep, goat beef and dairy cattle.			X	X		X						
Know and explain the differences between small and large ruminant feeding.		X		X				X	X		X	
Know and understanding the principles of ration balancing with forages.			X			X	X					
Distinguish between feeds nutrients metabolism.		X		X		X			X			

***Program SLOs:**

1. Create and implement plans, programs and systems to help in the development of animal production.
2. Work in research institutions and conduct research applied research to tackle current issues in animal production.
3. Demonstrate effective communication skills with livestock producers especially at a local level to provide the appropriate extension services.
4. have an ability to implement the results of scientific studies to take the appropriate decisions
5. Utilize critical thinking capabilities and problem solving skills in providing solution for outstanding issues facing the livestock sector in Jordan.
6. Have the ability to work as a manager in the animal production companies and enterprises.
7. Draw strategies and working plans to improve efficiency and productivity.
8. Have the ability to perform scientific projects under the supervision of faculty members.
9. Have scientific writing capabilities and use of scientific literature.
10. Lead technical teams of different animal production enterprises.
11. Have the ability to Identify the basic concepts, processes, and methods of conducting scientific research.
12. Develop the writing ability of technical reports.

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	INTRODUCTION	See the students learning outcomes (SLOs) table	Face to Face	Not Applicable	Not Applicable	Presentations, Term papers and exams	Chap 2 / Van Soest-1994. Sheet HO. Power point lectures.
2	2.1	Development of the Ruminant Forestomach						Chapter / Van Soest 1994. Power point lectures. Sheet HO.
3	3.1	Microbes in the Gut						Chapter 16 in Van Soest 1994. Power point lectures.
4	4.1	Carbohydrates Metabolism in the rumen						Chapter 11 in Van Soest 1994. Power point lectures.
5	5.1	Lipids Metabolism in the rumen						Chapter 20 in Van Soest 1994. Power point lectures.
6	6.1	Nitrogen Metabolism in the rumen						Chapter 18 in Van Soest 1994. Power point lectures.
7	7.1	intermediary Metabolism						Chapter 19 in Van Soest 1994. Power point lectures.
8	8.1	Intake						Chapter 9 in Van Soest 1994. Power point lectures
9	9.1	Forage Evaluation Techniques						Chapter 24 in Van Soest 1994. Power point lectures.
10	10.1	Energy systems						Chapter 21 in Van Soest 1994. Power point lectures.
11	11.1	Forage Evaluation Techniques						Chapter 23 in Van Soest 1994. Power point lectures.
12	12.1	Forage Preservation						Chapter 14 in Van Soest 1994. Power point lectures.



13	13.1	Metabolic Disorders					Chapter 8 in Van Soest 1994. Power point lectures.
14	14.1	Integrated Feeding Systems					Chapter 25 in Van Soest 1994. Power point lectures.
15	15.1	Integrated Feeding Systems					Chapter 21 in Van Soest 1994. Power point lectures.

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
Mid Exam	20%	Class material until week 8	See the students learning outcomes (SLOs) table	2/12/2021	Face to face
Term Paper	20%	-		-	Face to face
Presentations	20%	-		-	Face to face
Final Exam	40%	All class materials		According to administration and registration unit	Face to face

23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc): **Not applicable**

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 must not exceed 15%. Students are expected to attend all lectures but if a student is absent from class, it is their 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: Make-up exams will be given to students with acceptable excuses-- all effort must be made to contact the instructor if a student will not make an exam time. Exams must be made up within 3 days of the scheduled exam. An acceptable excuse will be reviewed on a case by case basis. Students that do not show up for a test without previous discussion with the instructor will receive a zero for that test- the instructor will not try to contact the student—it is the students job to know when the exams are and show up for the exams and also reschedule with the instructor prior to the exam if necessary. Students that reschedule a test that have received approval from the instructor and do not appear for the rescheduled time will receive a zero. Extreme cases will be reviewed on a case by case basis.



C- Health and safety procedures: each student must wear his mask and take a 2 m distance in the class room according to the UJ regulations.

D- Honesty policy regarding cheating, plagiarism, misbehavior: According to UJ regulations.

E- Grading policy: See the previous section.

F- Available university services that support achievement in the course: According to UJ regulations.

25 References:

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

Van Soest, P.J. 1994. Nutritional Ecology of the Ruminant. 2nd edition. Cornell University Press. USA

B- Recommended books, materials, and media:

1. **Cheeke, P.R. 2005. Applied Animal Nutrition, Feeds and Feeding. 3rd edition. Prentice-Hall, Inc.**
2. **Givens, D. I., E. Owen, R.F.E Oxford, H. M. Omed. 2007. Forage Evaluation in Ruminant Nutrition. 1st ed. CPI Antony Rowe, Eastbourne**
3. **Hobson, P.N., C.S. Stewart. 1997. The Rumen Microbial Ecosystem. 2nd edition. Chapman & Hall, London.**
4. **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.**

26 Additional information:

No

Name of Course Coordinator: Prof. Hosam Titi Signature: ----- Date: 1/10/2021

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of Curriculum Committee/Faculty: -----Signature: -----

Dean: -----Signature: -----