

**Jordan University of Science and Technology**  
**Faculty of Agriculture**  
**Department of Natural Resources & the Environment**  
**Semester Spring 2005**  
**Course Syllabus**

<b>Course Information</b>	
<b>Course Title</b>	Grazing Management
<b>Course Code</b>	NR 352
<b>Prerequisites</b>	NR 331- Rangeland management
<b>Course Website</b>	
<b>Instructor</b>	Dr. Mohammad Noor Alhamad.
<b>Office Location</b>	
<b>Office Phone #</b>	
<b>Office Hours</b>	Sunday, Tuesday and Thursday : 1-2 PM ,
<b>E-mail</b>	
<b>Teaching Assistant(s)</b>	
<b>Course Description</b>	
<p>This course examines how herbivores interact with their environment and its application in the management of grazing animals. Emphasis is placed on the scientific basis for grazing management decisions. Topics include grazing resistance, individual plants , population and community responses to grazing, grazing effects on ecosystem, foraging behavior and diet selection , range animal nutrition , stocking concepts and grazing systems, livestock production and sustainability.</p>	

<b>Textbook</b>	
<b>Title</b>	
<b>Author(s)</b>	
<b>Publisher</b>	
<b>Year</b>	
<b>Edition</b>	
<b>Book Website</b>	
<b>Other references</b>	<p>1-Grazing management: An ecological perspective (1991); Heitschmidt &amp; Stuth.  2-Grazing management(1990); J. Valentine  3- Selected paper(s)</p>

<b>Assessment</b>		
<b>Assessment</b>	<b>Expected Due Date</b>	<b>Percentage</b>
<b>First Exam</b>		30%
<b>Second Exam</b>		30%
<b>Final Exam</b>		40%
<b>Assignments</b>		
<b>Participation</b>		
<b>Attendance</b>		

<b>Course Objectives</b>
1- introducing the scientific principles for successful grazing management 2- developing the student ability to think rationally through evaluating information from multiple perspectives and draw reasonable conclusions. 3- introducing the student to the concepts of foraging behavior and diet selection process 4- introducing the scientific basis of range animal nutrition

<b>Teaching &amp; Learning Methods</b>

<b>Learning Outcomes:</b> Upon successful completion of this course, students will be able to		
<b>Related Objective(s)</b>		<b>Reference(s)</b>
<b>1</b>		<b>Chapter 2 and Handouts</b>
<b>1,2</b>		
<b>1-6</b>		
<b>3,4</b>		
<b>5,6</b>		
<b>6</b>		
<b>5</b>		

## Useful Resources

Course Content		
Week	Topics	Chapter in Textbook (handouts)
1,2	1- Course introduction . - Herbivory concepts and definitions? - evaluation of ruminants? - grazing environment - grazing management strategies and concepts	1,2
2	2- plant morphology Grasses structure and development Woody plant structure	1
3,4	3- Grazing resistance - avoidance - mechanical mechanism - biochemical mechanism -optimal defense theory -resource availability and investment in avoidance(dense) - tolerance - morphological - physiological - resistance cost	1
5	4- Responses to grazing - individual plants responses to grazing. - plant population responses to grazing -competitive interaction - community responses to grazing - succession - herbivore-induced vegetation change, - ecosystem responses to grazing	1
6	5- Range animal nutrition - character of forage - range herbivore - foraging strategies of ruminants - Characteristics of different classes of ruminants - nutritional values of forages	1
7	6- Hierarchy of animal needs - water - thermal - food: intake, factors affecting nutrient	1

	intake: animal factors;environmental , forage digestibility and quantity - animal factors affecting intake	
8,9	7- Foraging behavior and diet selection - factors affecting diet selection - ecological hierarchies - foraging patterns - foraging mechanism - foraging goals - interactive vs non interactive resources	1
10,11	8- Stocking concepts - terminology - number of animals, animal unit and stocking rate calculation - kind and class of animal - spatial distribution of animals - temporal distribution of animals	1
12,13	9- Grazing systems - concepts and terminology - types of grazing system: continuous, deferred rotation, rest rotation , short duration -overview of grazing environment in Jordan	1,2
14	10- Planning and grazing management environment - decision – making environment - functions of management - planning process	1
15	11- Grazing and sustainability - ecological sustainability and integrity - ecosystem management -- integrated crop /Livestock farming system in Jordan	3
16	Review for final exam	

<b>Additional Notes</b>