



Jordan University of Science and Technology
Faculty of Agriculture
Plant Production Department

PP332 Forage Production
Second Semester 2019-2020

Course Catalog
3 Credit Hours. This course focuses on major aspects of forage crop production and biology, for example, cultural practices, adaptation, sustainable agriculture use, seed production, harvest, livestock utilization, and storage of forages. The course especially emphasizes the characteristics of important grasses and legumes.

Text Book	
Title	Forages, Volume 1: An Introduction to Grassland Agriculture
Author(s)	Michael Collins, C. Jerry Nelson, Kenneth J. Moore, Robert F. Barnes
Edition	7th Edition
Short Name	Forages, Volume 1: An Introduction to Grassland Agriculture
Other Information	Iowa State Press. A Blackwell publishing Company 2003

Course References

Short name	Book name	Author(s)	Edition	Other Information
Making Hay	Making Hay: How To Cut, Dry, Rake, Gather, and Store a Nourishing Crop	Ann Larkin Hansen	1st Edition	Published in 2014 by Storey Publishing, LLC, MoCA way, North Adams, MA 01247
Managing Pasture	Managing Pasture: A Complete Guide to Building Healthy Pasture for Grass-Based Meat & Dairy Animals	Dale Strickler	1st Edition	Storey Publishing, 2019
The Art and Science of Grazing	The Art and Science of Grazing: How Grass Farmers Can Create Sustainable Systems for Healthy Animals and Farm Ecosystems	Sarah Flack.	1st Edition	Illustrated Edition, ISBN-13: 978-1603586115, ISBN-10: 1603586113

Instructor	
Name	Prof. Munir Turk

Office Location	C4L2
Office Hours	Sun : 09:00 - 13:00 Mon : 08:30 - 10:00 Tue : 08:30 - 13:00 Wed : 08:30 - 10:00 Wed : 13:15 - 15:00
Email	munatur@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 10:00 - 11:00 Room: C5021

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Orientation and Introduction ? The Importance of Forage Crops, ? Ecology of Forage Crops, ? Definition, Objectives, importance, ? Forage Crops and their characteristics	From Forages, Volume 1: An Introduction to Grassland Agriculture
Week 3	Harvesting. Storage, and Utilization of forage Crops. ? Direct grazing, ? Cut & Carry,	From Forages, Volume 1: An Introduction to Grassland Agriculture , From The Art and Science of Grazing
Weeks 4, 5, 6	The Botany of Grasses ? Gramineae family examples, Corn, Sorghum, Barley, Oat ? Characteristic of Gramineae forage crops ? Growth stages of Grasses ?	From Forages, Volume 1: An Introduction to Grassland Agriculture
Weeks 7, 8, 9	The Botany of Legumes ? leguminosae family examples; ? Annual Legume Crops: Common vetch, Egyptian clover ? Perennial Legumes: Alfalfa, Clovers ? Characteristic of legumes, ? Role of legumes as Forage & Pasture ? Symbiosis nodule bacteria and leguminous plants ?	From Forages, Volume 1: An Introduction to Grassland Agriculture
Week 10	. Intercropping and Forage Mixtures Monoculture Vs. Mixture, ? Types, Advantages, Elements of choosing crops	From Forages, Volume 1: An Introduction to Grassland Agriculture , From Making Hay , From Managing Pasture

Week 11	Annual Pasture to Replace Fallow ? Annual Medics or Ley Farming System	From Forages, Volume 1: An Introduction to Grassland Agriculture , From Making Hay , From Managing Pasture , From The Art and Science of Grazing
Week 12	Hay Making? Methods of making hay, ? The Dryers, Losses Involve ? Qualities of hay, ? Preservation of Hay.	From Making Hay
Weeks 13, 14	Silage Making ? Characteristics of Forage Crops for Ensiling, ? Advantages & disadvantages of Ensiling process ? Changes During Ensilage, Losses Involve, ? Preparation of Good Silage ? Aerobic Stability of Silage ? Silage and haylage	From Forages, Volume 1: An Introduction to Grassland Agriculture
Weeks 15, 16	Chemical Composition of Forages ? Carbohydrate, Crude Fibers & Lignin, ? Mineral Elements and Toxic Elements ? Other Constitutes (Vitamins, Hormones & Enzymes).	From Forages, Volume 1: An Introduction to Grassland Agriculture

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Assess the role of forages in a productive, sustainable agriculture	25%	
Know & identify the major forage crops	25%	
Develop an understanding of principles of forage crop management, including harvesting & utilization	25%	
Understand how management affects growth stand persistence, & physiological changes of forage crops.	25%	

Relationship to Program Student Outcomes (Out of 100%)						
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7

Policy	
A student?s participation	A student?s participation in the work of a course is a precondition for receiving credit for the course. Students are expected to attend punctually all lecture and laboratory sessions and field experiences and to participate in course assignments and activities as described in the course syllabus. Students registering late or who miss class are expected to make up all missed assignments in a manner determined by the instructor.