COURSE SYLLABUS – Spring 2014
ESSM 611—GRAZING MANAGEMENT AND RANGE ANIMAL NUTRITION

M. M. Kothmann, Office 845-5575, Cell 229-7410, m-kothmann@tamu.edu
Office: Animal Industries 206, Office hours by appointment or any time I am present. You are welcome to ‘drop-in’ or email me to schedule an appointment.

Prerequisite: Graduate classification

Outline of Course Topics

- Management of the interactions of rangeland plants and animals.
  - Principles of plant growth.
  - Principles of plant succession and community function.
- Principles and concepts for grazing management.
  - Manipulation of season, frequency, and intensity of grazing
  - Use of fire to manage plant communities.
- Linking grazing methods to vegetation management and animal nutrition.
- The carrying capacity concept and management of stocking rates.
- Plant characteristics that determine forage quality.
- Forage preferences/diet selection of different kinds and classes of herbivores.
- Concepts for nutritional ecology of herbivores:
  - Anatomical, physiological, and metabolic characteristics of herbivores,
  - Diet selection, intake, digestion, metabolism, and assimilation of nutrients from grazed forages and supplements.
- Principles of nutritional management:
  - Supplementation of grazing animals for maintenance, growth, lactation, and reproduction.

Learning Outcomes
At the completion of this course, you should be able to:
1. Describe key morphological and physiological processes of plant growth and development that are important to grazing management. Understand the interactions of grazing and environmental conditions on plant growth.
2. Describe plant community responses to grazing and fire on range and pasture lands.
3. Describe concepts and principles for different grazing management methods.
4. Describe the concept of carrying capacity and explain how it relates to animal production and the management of stocking rates and grazing systems on range and pasture lands.
5. Identify and describe the concepts and variables incorporated into The Grazing Manager and how TGM is used to plan and monitor grazing management.
6. Describe chemical and morphological factors that affect forage quality and anti-quality.
7. Describe anatomical characteristics of animals that affect diet selection, digestion and intake.
8. Describe the principles of nutritional ecology (diet selection, digestion and passage through the GI track) in relation to forage intake.
9. Understand concepts and principles for effective supplementation of grazing animals.
10. Analyze, evaluate, and recommend alternative grazing management methods with respect to the expected vegetation and animal responses.
11. Recommend supplementation practices with respect to the expected animal responses.

Learning Approach
You will utilize independent reading and on-line class discussions to develop individual synthesis reports, which you will submit on-line each week. You are expected to read the assigned papers, participate each week in on-line discussions, and submit the weekly assignments on time. There will be no exams. Assignments will be submitted on-line in Vista. Grading will be based on accuracy, completeness, and evidence of critical thinking. Your grade in this course will depend upon regular participation in on-line discussions and completing weekly assignments on-time.
Text: Selected readings posted on eCampus course page

Grading: A 90-100%; B 80-89%; C 70-79%; D 60-69%; F <60%
  • 30% Discussion
  • 70% Synthesis Papers

Penalty for Late Submission of Papers
Assignments not submitted by the ‘Due Date’ listed, without prior approval of the instructor, will be subject to a 10% late penalty.

ADA POLICY STATEMENT: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Koldus Building. The phone number is 845-1637.

Academic Integrity Statement
"An Aggie does not lie, cheat, or steal or tolerate those who do."
As a student at Texas A&M University, it is your duty to know and live by the Aggie Honor Code. For details, please refer to the Honor Council Rules and Procedures on the web at www.tamu.edu/aggiehonor

Plagiarism
Plagiarism consists of passing off as one’s own the ideas, words, writings, etc., which belong to another. You are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Evidence of plagiarism will result in an automatic null mark (ZERO) for the assignment or test. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Additional Information
Course materials will be delivered through eCampus. Papers will be organized into 13 weekly modules that correspond to the course schedule. Reference papers and other instructional materials will be posted in modules for each of the 13 weeks. A discussion thread will be started by the instructor each week. Each student will be expected to contribute to each discussion thread and contributions will be evaluated. Postings should focus on questions and comments related to the reference papers for that week. Each student will submit a synthesis paper at the end of each week based on questions posted by the instructor. The synthesis paper will summarize the key concepts and principles for the weekly topic. The course grade will be based on the weekly student submissions to the online discussions and the synthesis papers. There will be 13 grades for weekly discussion and 13 grades for the synthesis papers.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/13</td>
<td>Course introduction; methods, materials, and procedures Forage class, species, plant part</td>
<td>1/19, 1/20</td>
</tr>
<tr>
<td>2</td>
<td>1/20</td>
<td>Plant Growth and Development</td>
<td>1/26, 1/27</td>
</tr>
<tr>
<td>3</td>
<td>1/27</td>
<td>Plant Community Dynamics</td>
<td>2/2, 2/3</td>
</tr>
<tr>
<td>4</td>
<td>2/3</td>
<td>Grazing methods</td>
<td>2/9, 2/10</td>
</tr>
<tr>
<td>5</td>
<td>2/10</td>
<td>Carrying capacity and stocking rates</td>
<td>2/16, 2/17</td>
</tr>
<tr>
<td>6</td>
<td>2/17</td>
<td>The Grazing Manager</td>
<td>2/23, 2/24</td>
</tr>
<tr>
<td>7</td>
<td>2/24</td>
<td>Analysis of Grazing Plans</td>
<td>3/2, 3/3</td>
</tr>
<tr>
<td>8</td>
<td>3/3</td>
<td>Forage characterization: Anti-quality factors, Chemical composition</td>
<td>3/16, 3/17</td>
</tr>
<tr>
<td>9</td>
<td>3/17</td>
<td>Anatomy of the gastro-intestinal tract of large ungulates; Foraging strategies</td>
<td>3/23, 3/24</td>
</tr>
<tr>
<td>10</td>
<td>3/24</td>
<td>Diet selection (palatability, preference, selection)</td>
<td>3/30, 3/31</td>
</tr>
<tr>
<td>11</td>
<td>3/31</td>
<td>Forage &amp; nutrient intake</td>
<td>4/6, 4/7</td>
</tr>
<tr>
<td>12</td>
<td>4/7</td>
<td>Nutritional management: Supplementation and Grazing management</td>
<td>4/13, 4/14</td>
</tr>
<tr>
<td>13</td>
<td>4/14</td>
<td>Analyze and evaluate scenarios for grazing management and supplementation with respect to vegetation and animal responses.</td>
<td>4/20, 4/21</td>
</tr>
</tbody>
</table>