

AGSM 310 Agricultural Machinery Management Spring 2015 Course Syllabus

MEETING TIME AND PLACE:

Lecture: MW 8:00 - 8:50, Room 317 Scoates Hall

Laboratory Section 501: Mon 1:50-3:40 (Rm. 213 Scoates Hall: BAEN Undergraduate Computer Room)

Laboratory Section 502: Mon 4:00 -5:50 (Rm. 213 Scoates Hall: BAEN Undergraduate Computer Room)

COURSE OBJECTIVES AND LEARNING OUTCOMES:

At the end of this course, the student should be able to apply economic and management principles for selecting and managing machinery systems and equipment in production agriculture.

At the end of this course, the students should be able to do the following:

1. Select appropriate machinery (number, size, etc.) for a given production process
2. Match machine size and capacities for a given production area
3. Design computer spreadsheet tools for managing machinery and be able to compare alternatives
4. Formulate comparative cost analysis for machinery management
5. Compare machinery management operations with or without maintenance
6. Distinguish the different machinery used in several agricultural operations (bio-energy conversion, cotton ginning, beef cattle feedyard operations, among others)

Prerequisite: AGSM 301 and AGECE 330

Suggested References:

1. *Machinery Management* by John C. Siemens and Wendell Bowers, 1999.
2. *Productivity and Reliability-based Maintenance Management* by M. P. Stephens, 2004. (Reference)
3. *Introduction to Management Science* by B.W. Taylor III. Seventh Edition, 2002. (Reference)
4. *Hunt, Donnell. 2001. Farm Power and Machinery Management. 10th Edition. Waveland Press, Inc., Long Grove, IL. (Reference)*

INSTRUCTOR:

Sergio Capareda, Ph.D.

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Consultation Hours: 8 am – 5 pm T-TH and F

Teaching Assistant and Grader

Jinjuta Kongkasawan

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Consultation Hours: By Appointment

TOPICS:

	<u>Periods</u>
1) Review of Management Science and Units of Conversions	1
2) Measuring Machine Capacity and Improving Field Efficiency	2
4) Matching Machine Size and Capacity	2
5) Estimating Energy and Power requirements	2
6) Estimating Fixed Costs, Variable and Total Costs	4
8) Selecting the Best Alternatives	3
9) Reliability and Management Tools for Machinery Management	3
10) Tools for Machinery Management at Various Industries	4
11) Exams (to be given in lecture periods)	3
12) Review of exams (to be done in lecture class)	6

GRADE DETERMINATION:

Type	Number	% (w/o Finals)	% (with Finals)	Grade	Range
Exams	3	50%	60%	A	90-100%
HW + Quizzes	~17+4 ⁺	25%		B	80-90%
Lab Exercises	~13	25%		C	70-80%
Finals	1		40%	D	60-70%
Totals		100%	100%	F	<60%

Pop Quizzes will be given throughout the semester. These quizzes will be worth a homework grade. **THEY CANNOT BE MADE UP.** If you miss a class period that a quiz is given, you will be assigned a grade of zero for that quiz. They are normally given at the beginning of each lecture class. All quizzes will be included in grade the calculations.

Tips for Success

1. Attend all lecture and laboratory classes. Print-out lecture notes ahead of time.
2. Solve all homework problems and laboratory exercises by yourself.
3. Submit all HW and lab exercises on time.
4. Seek out help early
5. Come to class with a positive attitude and interact with classmates, TA and instructor
6. Learn to make use of computer spreadsheet software (Excel) beyond laboratory hours
7. Keep abreast with the latest information on machinery in agriculture and industry
8. Consult with instructor and lab assistants regularly and practice solving problems
9. Learn how to use your calculator properly

HOMEWORK POLICY:

Homework (HW) assignments will be given in the lecture. The HW is due the next lecture class and will be returned the next lecture class. Thus, homework assignments **will not** be accepted after graded assignments have been returned to the class. Any **8.5" x 11"** paper will be sufficient for homework assignments (*excluding torn out spiral notebook paper*). Engineering paper is preferred. Use only **one side** of the paper for work to be graded. Multiple pages should be **stapled together**. Make all your solutions **neat and orderly**. Homework that does not follow these guidelines will not be graded and accepted. You may seek the help of your classmates on homework assignments. However, the **Team XEROX** approach is not allowed and all collaborators will automatically be given a grade of **ZERO**.

Attendance:

Attendance will be taken during each class. It is the student's responsibility to learn the material and make up any assignments missed. In the event that you must miss an exam, it is the student's responsibility to make arrangements to make the makeup exam. Refer to the Texas A&M University Student Rules for any questions you have on attendance. Attendance will be used for additional grade-points at the end of the class (process of curving the grade). No absences mean an additional 2.5 points. No additional points will be given if the student has more than 3 absences.

Plagiarism and Cheating:

As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, 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. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

For many years, Aggies have followed a Code of Honor in an effort to unify the aims of all Aggies toward a high code of ethics and dignity. It functions as a symbol to all Aggies, promoting understanding

and loyalty to truth and confidence in each other.

AGGIES DO NOT LIE CHEAT OR STEAL; NOR DO THEY TOLERATE THOSE WHO DO.

If you have any questions regarding plagiarism or cheating, please consult the Texas A&M University Student Rules, under the section Scholastic Dishonesty.

Students with Disabilities:

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 Student Life - Services for Students with Disabilities in Cain Hall, Room B118. The phone number is 845-1637. Also talk with the instructor about the accommodations you need.

***AGSM 310 CLASS SCHEDULE
SPRING, 2015***

WEEK	Lecture Date	Lab Date
1	Jan 21	
2	Jan 26, 28	Jan 26
3	Feb 2, 4	Feb 2
4	Feb 9, 11	Feb 9
5	Feb 16, 18	Feb 16
6	Feb 23, 25	Feb 23
7	Mar 2, 4	Mar 2
8	Mar 9, 11	Mar 9
*****Spring Break *****March 16-20*****		
9	Mar 23, 25	Mar 23
10	Mar 30, Apr 1	Mar 30
11	Apr 6, 8	Apr 6
12	Apr 13, 15	Apr 13
13	Apr 20, 22	Apr 20
14	Apr 27, 29	Apr 27
15	May 4	May 4

**MAJOR EXAM DATES
AGSM 310 - Spring, 2015**

1. EXAM 1	Feb 18	Wednesday
2. EXAM 2	April 1	Wednesday
3. EXAM 3	April 29	Wednesday
Final Exam: 10a.m. – Noon Thursday, May 7, 2015 at Rm. 317		

AGSM 310 Agricultural Machinery Management
Schedule, Spring 2015

Week	Date	Lecture Topic	Homework	Date	Lab
1	Jan 21 W	(1) Introduction/Units & Conversion	(1) Units and Conversions		
2	Jan 26 M	(2) Field Capacities	(2) Machine Capacities	Jan 26 M	(1) Units and Conversions
	Jan 28 W	(3) Improving Field Efficiency	(3) Improving Field Capacities		
3	Feb 2 M	(4) Estimating Power Requirements	(4) Energy And Power	Feb 2 M	(2) Machine Capacities
	Feb 4 W	(5) Uniform Terminology (ASAE D495)	(5) ASABE D 495.1		
4	Feb 9 M	(6) Machinery Mgmt. (ASAE D496)	(6) ASABE Standards D496.3	Feb 9 M	(3) Estimating Power Requirements
	Feb 11 W	(7) Machinery Data (ASAE D497)	(7) ASABE Standards D 497.5		
5	Feb 16 M	Review for Exam#1		Feb 16 M	(4) ASABE Standards 1
	Feb 18 W	Exam #1	Coverage (Lecture 1-7)		
6	Feb 23 M	Review of Exam #1		Feb 23 M	(5) ASABE Standards 2
	Feb 25 W	(8) Fixed Cost	(8) Fixed Costs		
7	Mar 2 M	(9) Variable Cost	(9) Variable Cost	Mar 2 M	(6) Fixed Cost (2/27)
	Mar 4 W	(10) ASABE Costs	(10) Total Costs		
8	Mar 9 M	(11) Custom Work Cost	(11) Custom Work Cost	Mar 9 M	(7) Total Costs (3/5)
	Mar 11 W	(12) Time Value of Money	(12) Time Value of Money		
	Mar 16 M	Spring Break			
	Mar 18 W	Spring Break			
9	Mar 23 M	(13) Comparing Alternatives	(13) Comparing Alternatives	Mar 23 M	(8) Custom Work Cost
	Mar 25 W	(14) Comparing Alternatives (ASAE)			
10	Mar 30 M	Review for Exam #2		Mar 30 M	(9) Comparing Alternatives
	Apr 1 W	Exam #2	Coverage (Lecture 8-14)		
11	Apr 6 M	Review of Exam #2		Apr 6 M	(10) Comparing Alternatives ASABE
	Apr 8 W	(15) Reliability and Maintenance Concepts	(14) Reliability and Maintenance		
12	Apr 13 M	(16) Cotton Ginning and Costs	(15) Cotton Ginning and Cost	Apr 13 M	(11) Reliability and Maintenance
	Apr 15 W	(17) Feedyard Operations	(16) Feedyard Operations		
13	Apr 20 M	(18) Bioenergy Lecture 1	(17) Bioenergy 1	Apr 20 M	(12) Cotton Ginning
	Apr 22 W	(19) Bioenergy Lecture 2			
14	Apr 27 M	Review for Exam #3		Apr 27 M	(13) Feedyard Operations
	Apr 29 W	Exam #3	Coverage (Lecture 15-19)		
15	May 4	Review of Exam #3 and Finals		May 4	(20) Other Renewables