AGM 410
AGRICULTURAL MACHINERY OPERATION AND PERFORMANCE
Spring 2016

Name: Dr. Craig Morton

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Office: Agricultural Mechanics Shop

Office Hours: M – 5:00 – 6:00, T – 3:00 to 5:00, W – 1:00 to 5:00, R – 4:00 to 6:00, F - 10:00 to 11:00, other times by appointment

Department: Agriculture

Class meeting time and place: lecture MW 11:00 to 11:50 in the Agricultural Engineering Technology building, room 110; lab R 2:00 – 3:50 in the Agricultural Engineering Technology building, room 110

COURSE OBJECTIVE: To teach students a wide range of basic concepts, principles and techniques for agricultural machine selection, operation, performance evaluation, and management.

Program Learning Outcomes:

Demonstrate proficiency in using the John Deere Predictor Chart
Demonstrate ability to use the International System of Units (SI) in machinery management
Calculate draft and fuel use
Calculate DBHP requirements
Calculate forces and power available in a hydraulic system
Calculate horsepower requirements
Calculate theoretical and actual field capacity
**Text and Materials:** No text is required. A calculator will be needed in most labs and many lectures and should, therefore, be brought to class routinely. A good reference is *Farm Power and Machinery Management*, Donnel Hunt.

**Course Requirements:**

- Three exams: 300 points
- Research report/CDE: 50 points
- Lab exercises: 150 points
- Attendance & punctuality: 100 points

600 points

**Grading Policy:**

- 540 – 600 points = A
- 480 – 539 points = B
- 420 – 479 points = C
- 360 – 419 points = D
- 0 – 359 points = F

**Course Calendar:**

- **Week 1:** History of Agricultural Power
  - Basic Principles of Power
- **Week 2:** Tractor Types and Trends
  - Internal Combustion Engine Operating Principles
- **Week 3:** Fundamentals of Engines
  - Engine Electrical Systems
- **Week 4:** Intake and Exhaust Systems
  - Diesel Engines
- **Week 5:** Exam I
  - Exam critique
- **Week 6:** Cooling Systems
  - Oils and Greases
- **Week 7:** Clutches, Transmissions, and Final Drives
  - PTO Shafts, Steering Gear, Brakes and Belts
- **Week 8:** Hydraulic Systems
  - Safe Tractor Operation
Week 9 – Exam 2
    Exam critique
Week 10 - Machinery selection
Week 11 - SFASU Invitational CDE
    Machinery selection
Week 12 - Machinery Selection
Week 13 - Figuring Draft and Fuel Use
Week 14 - John Deere Predictor Chart
Week 15 - Machinery Costs
Week 16 - Final Exam

The above schedule may be altered by the instructor if the need arises.

**Attendance Policy**

Students are expected to attend all classes and labs. Over 15% of the class grade is determined by attendance. A tardy is equal to an absence; if you miss roll call your attendance grade will suffer. If you arrive after roll call do not ask for attendance credit. Treat this class as you would treat a job – be where you are supposed to be when you are supposed to be there. Except for excused absences, exams and lab exercises cannot be made-up. Excused non-emergency absences must be coordinated in advance or they will be treated as unexcused. Make-up for emergency absences should be coordinated immediately upon return to class.

**Academic Integrity (A-9.1)**

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty - Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your
own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

You may read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

**Acceptable Classroom Behavior**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic, or other penalties. This prohibition applies to all instructional forums. The instructor shall have full discretion over what is appropriate/inappropriate in all instructional forums.

Students who do not attend classes regularly or who perform poorly may be referred to the iCare program http://www.sfasu.edu/judicial/earlyalert.asp. This program provides students with recommendations or other assistance that is available to help SFA students succeed.

**Tobacco Free Campus**

Use of all forms of tobacco are strictly forbidden anywhere in the AET building and compound. Concealed carry is permitted but this does not include hiding a tobacco product between the cheek and gum.

**Responsible Use of Technology**

It is expected that all students will only use cell phones, PDAs, laptop or table computers, MPs players, and related devices outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music, or using a laptop/tablet for matters unrelated to the course may be grounds for dismissal from class or other penalties. Recording lectures or
labs is allowed only with permission. Photographing tests, lab exercises, or other class material is prohibited.

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities:** To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).
Program Learning Outcomes

1. The student will demonstrate competence of technical subject matter (Technical)
2. The student will exhibit problem solving skills. (Problem Solving)
3. The student will demonstrate effective communication skills. (Communication)
4. The student will exhibit leadership and other interpersonal skills needed for career placement and advancement. (Leadership)

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B- Basic    I- Intermediate     A- Advanced    M- Mastery