

**Western Illinois University – School of Agriculture**  
**AGTM 365: Agricultural Engines (4)**  
**Course Syllabus – Spring 2016 “Subject to Change”**

**Course Meets:** MWF 9:00 – 9:50 am in KH 307  
 T 8:00 – 9:50 am in KH 307 or B1

**Text:** *Engine and Tractor Power*, 4<sup>th</sup> Edition, Goering and Hansen, ISBN: 1-892769-42-5

**Instructor:** Dr. Daniel Atherton                      **E-mail:**     [DL-Atherton@wiu.edu](mailto:DL-Atherton@wiu.edu)

**Office:** B 22 Knoblauch Hall                      **Office Phone:** 309-298-2395

**Lab Fee:** \$20.00

**Office Hours:** MTWF 10:00 to 11:00 or by appointment

Dr. Atherton’s Spring 2016 Course Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 – 8:50		AGTM 365 (KH 307/B1)			
9:00 – 9:50	AGTM 365 (KH 307)	AGTM 365 (KH 307/B1)	AGTM 365 (KH 307)		AGTM 365 (KH 307)
10:00 – 10:50	Office Hour	Office Hour	Office Hour	AGTM 350 (KH 307/B1)	Office Hour
11:00 – 11:50	AGTM 350 (KH 307)		AGTM 350 (KH 307)	AGTM 350 (KH 307/B1)	AGTM 350 (KH 307)
12:00 – 12:50					
1:00 – 1:50		AGTM 250 (KH B3)			
2:00 – 2:50	AGTM 250 (KH 152)	AGTM 250 (KH B3)	AGTM 250 (KH 152)		
3:00 – 3:50		AGTM 250 (KH B3)			
4:00 – 4:50		AGTM 250 (KH B3)			

**Course Description: 365 Agricultural Engines - (4)** Operating principles of gasoline and diesel engines, power trains, and fuel and electrical systems.

**Course Objectives:**

- Develop knowledge of the principles of operation of an internal combustion engine and drive train.
- Develop skill to troubleshoot faulty engines
- Develop skill required to overhaul small gas engines and diesel engines

**Quality of Work Policy:** All assignments should be word processed with title of assignment, name, date, and a summary of the assignment included at the beginning of the assignment. Run spell-checker. If completing multiple-step problems, show all work. Your work should be neat and orderly.

**Academic Dishonesty:** Any violation of the Academic Dishonesty Policy in Student Handbook will result in an automatic failure of the course. Plagiarism and cheating are unacceptable.

**Attendance:** Attendance is mandatory. **You are allowed THREE absences. Starting on the FOURTH absence, your grade will drop 5% for each additional absence.** If you anticipate an absence, notify me in advance (in writing) and use the OARS system to report your absence ([www.wiu.edu/oars](http://www.wiu.edu/oars)). In cases where advanced notification is not feasible (e.g. accident, or emergency), you must provide notification by the end of the second working day after the absence. Notification for all absences should include a written explanation indicating the reason for the absence, why notice could not be sent prior to the missed class (if applicable), all documentation required, and suggested arrangements for making up what you missed in class (assignments, participation points, etc.) After two working days, notification and documentation for absences may not be accepted. It is the student's responsibility to coordinate with the instructor to make up missed work. Quizzes may be given at any time and no makeup quizzes will be given unless the instructor approves the absence prior to missing class.

**Assessment and Grading:** Your final grade is based on your overall weighted percent on the following components of the course:

<u>Component</u>	<u>Percentage</u>
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam (Comprehensive)	20%
Quizzes	10%
Project/Presentation	15%
Class & Lab Participation	10%

(Participation includes attendance; exercises (projects), discussion, and lab clean up at end of lab session)

**Grading Scale**

A	93 – 100%	A-	90 – 92%
B+	87 – 89%	B	83 – 86%
B-	80 – 82%	C+	77 – 79%
C	73 – 76%	C-	70 – 72%
D+	67 – 69%	D	63 – 66%
D-	60 – 62%	F	< 60%

**Students Rights and Responsibilities:** [www.wiu.edu/provost/students/](http://www.wiu.edu/provost/students/)

**Final Grades:** Unless a computational error was made, grades will not be changed after the end of the semester. Please do not come to the instructor with “extenuating circumstances” for why your grade should be changed – the semester grade represents the level of work you completed over the semester.

**Late Assignments:** No late assignments will be accepted unless the instructor approves of turning in an assignment late prior to the assignment's due date. Assignments will be due at the beginning of class on their

due date. Hand written assignments will not be accepted unless instructed otherwise. Assignments will be written in 12 point font with 1" margins. Points will be deducted for incorrect spelling and grammar.

**Attention Education Majors:** The changes within the state certification require all education majors to receive a grade of a "C" or better in this course in order to meet these new requirements. With the university +/- grading system, receiving a "C-" or below will require you to retake this course or find a substitute course to meet School of Agriculture graduation requirements.

**Professional Learning Environment:** Please be respectful of your fellow students and the instructor and do your part to maintain the professional learning environment of this course. **Please silence your cell phones. Avoid texting during class.** Individual disruptions, such as **entering the classroom late, allowing your cell phone to ring audibly, engaging in unrelated activities (e.g., texting or surfing the web)** during class time, or **packing your belongings before class ends**, distract other students and detract from the quality of the learning environment for the whole class. Infractions will be noted and your class participation grade will suffer. The instructor reserves the right to ask for cell phones to be returned to students after the class period or to remove from group work a student who is demonstrating inadequate levels of participation.

**Students with Disabilities:** In accordance with University values and disability law, students with disabilities may request academic accommodations where there are aspects of a course that result in barriers to inclusion or accurate assessment of achievement. To file an official request for disability-related accommodations, please contact the Disability Resource Center at 309-298-2512, [disability@wiu.edu](mailto:disability@wiu.edu) or in 143 Memorial Hall. Please notify the instructor as soon as possible to ensure that this course is accessible to you in a timely manner.

**\*\*\* Scheduling and weekly topics are subject to change at instructor's discretion \*\*\***

**Schedule:**

Week 1 - (week of 1/18): Course introduction, basic thermodynamics of engines – chap. 2

Week 2 - (week of 1/25): Engine components – chap. 3. Engine cycles and timing – chap. 4.

Week 3 - (week of 2/1): Fuels and combustion – chap. 6. Fuel systems and carburation – chap. 9.  
WIU Farm Expo at Western Hall

Week 4 - (week of 2/8): Fuel systems and carburation – chap. 9. Precision measuring and testing instruments.  
Exam 1 (chap. 2, 3, 4, 6, and 9)

Week 5 - (week of 2/15): Ignition circuits – chap. 8. Electrical systems – chap. 7. Small gas engine disassembly, inspection, and assembly.

Week 6 - (week of 2/22): Electrical systems – chap. 7. Power efficiencies and measurement – chap. 5. Small gas engine disassembly, inspection, and assembly.

Week 7 - (week of 2/29): Power efficiencies and measurement – chap. 5. Diesel engines – chap. 10. Small gas engine disassembly, inspection, and assembly.

Week 8 - (week of 3/7): Diesel engines – chap. 10. Diesel engine disassembly, inspection, and assembly.  
Exam 2 (chap. 5, 7, 8, and 10)

Week of 3/14: Spring Break Week – No Classes

Week 9 - (week of 3/21): Intake and Exhaust systems – chap. 11. Cooling systems – chap. 12. Diesel engine disassembly, inspection, and assembly.

Week 10 - (week of 3/28): Cooling systems – chap. 12. Lubricants and lubricating systems – chap. 13. Diesel engine disassembly, inspection, and assembly.

Week 11 - (week of 4/4): Lubricants and lubricating systems – chap. 13. Hydraulic systems and hitches – chap. 14. Diesel engine disassembly, inspection, and assembly.

Week 12 - (week of 4/11): Hydraulic systems and hitches – chap. 14. Power Trains – chap. 15. Diesel engine disassembly, inspection, and assembly.

Week 13 - (week of 4/18): Power Trains – chap. 15. Weight, transfer, traction, and safety – chap. 16. Exam 3 (chap. 11, 12, 13, 14, 15). Diesel engine disassembly, inspection, and assembly.

Week 14 - (week of 4/25): Weight, transfer, traction, and safety – chap. 16. Datalink, ECMs, J1939, ATA protocols. Diesel engine disassembly, inspection, and assembly.

Week 15 - (week of 5/2): Student Presentations. Laboratory cleanup.

Final Exam: Wednesday, May 11<sup>th</sup> from 8:00 – 9:50 am KH 307

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