

**Western Illinois University – School of Agriculture**  
**AGTM 365: Agricultural Engines (3)**  
**Course Syllabus – Fall 2022 “Subject to Change”**

**Course Meets:** T/TH 8:00 – 9:50 am in KH 307 or 1B  
**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

**Office Hours:** M/W 1:00 - 1:50 or T/TH 12:00 - 12:50

**Course Description:** **365 Agricultural Engines - (3)** 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
- Develop knowledge of hydraulic systems used on agricultural machines

**Attendance:** If at any time you miss the lecture or lab, please use the OARS system to report your absence ([www.wiu.edu/oars](http://www.wiu.edu/oars)). I will need the email generated from this system prior to class and not after. If I receive the email after class has ended then the late grade policies come into effect. 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.

**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:** <http://www.wiu.edu/policies/acintegrity.php>

Any violation of the Academic Dishonesty Policy in Student Handbook will result in an automatic failure in the course. Plagiarism and cheating are areas of concern for this course. This course is designed to enhance your writing and presentation skills within your academic area, not the ability to copy other’s thoughts and ideas.

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

**Students Rights and Responsibilities:** <http://www.wiu.edu/provost/students.php>

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

<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% (Includes attendance, lab work, discussion, and lab clean up)

**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%

**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 instructor approves of turning in an assignment late prior to 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 12 point font with 1” margins. Points will be deducted for incorrect spelling and grammar.

**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.

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**Policy on Student Absences:** Absence from class will be considered excused if the absence is (1) due to a required isolation or quarantine based on a (2) documented directive from a public health official or health provider, and (3) if the instructor of record receives notification through WIU Student Services. The student (4) remains responsible for contacting instructors to arrange to complete missed work as soon as possible and is (5) ultimately responsible for material covered in class.

**Policy on Taking Attendance and Seat Assignments:** WIU’s COVID protocols require that faculty for all face-to-face classes maintain a seating chart and take attendance to facilitate contact tracing. Students are required to sit in their designated seat during all face-to-face class sessions.

**Policy on Disruptive Students:** Students will face disciplinary action if they are found to be non-compliant with WIU’s COVID-19 Health and Safety Policy ([http://www.wiu.edu/policies/covid\\_safety.php](http://www.wiu.edu/policies/covid_safety.php)). Non-compliance may be considered disruptive student behavior and disciplinary action will follow general process outlined in disruptive student behavior procedures (<http://www.wiu.edu/policies/disrupst.php>) and/or other applicable enforcement measures applicable to the Code of Student Conduct.

**Disruptive Student Behavior:** <http://www.wiu.edu/vpas/policies/disrupst.php>

**ADA Compliance:** “In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. For the instructor to provide the proper accommodation(s) you must obtain documentation of the need for an accommodation through Disability Resource Center (DRC) and provide it to the instructor. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she is not legally permitted to inquire about such particular needs of students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should contact the instructor as to the most appropriate procedures to follow in such an emergency. Contact Disability Resource Center (DRC) at 298-2512 for additional services.”

**University values, Title IX, and other federal and state laws prohibit sex discrimination, including sexual assault/misconduct, dating/domestic violence, and stalking. If you, or someone you know, has been the victim of any of these offenses, we encourage you to report this to the Title IX Coordinator at 309-298-1977 or anonymously online at: [http://www.wiu.edu/equal\\_opportunity\\_and\\_access/request\\_form/index](http://www.wiu.edu/equal_opportunity_and_access/request_form/index). If you disclose an incident to a faculty member, the faculty member must notify the Title IX Coordinator. The complete Title IX policy is available at: <http://www.wiu.edu/vpas/policies/titleIX>.**

**Tentative Schedule \*\*\* Scheduling and weekly topics are subject to change at instructor’s discretion \*\*\***

<b>Week</b>	<b>Topics</b>
Week 1	Course Intro., requirements, etc.; Basic thermodynamics of engines – chap. 2
Week 2	Basic thermodynamics – chap. 2; Engine comp. – chap. 3. Engine cycles & timing – chap. 4
Week 3	<b>Labor Day – No Class</b> ; Fuels and combustion – chap. 6; Fuel systems and carburation – chap. 9
Week 4	Fuel systems and carburation – chap. 9; <b>Exam 1</b> (chap. 2, 3, 4, 6, and 9)
Week 5	Ignition circuits – chap. 8; Electrical systems – chap. 7
Week 6	Electrical systems – chap. 7; Power efficiencies & measurement – chap. 5
Week 7	Power efficiencies & measurement – chap. 5; Diesel engines – chap. 10
Week 8	Diesel engines – chap. 10; <b>Exam 2</b> (chap. 5, 7, 8, and 10)
Week 9	Intake and Exhaust systems – chap. 11; Cooling systems – chap. 12
Week 10	Cooling systems – chap. 12; Lubricants & lubricating systems – chap. 13
Week 11	Lubricants & lubricating systems – chap. 13; Hydraulic systems and hitches – chap. 14;
Week 12	<b>Election Day – No class</b> ; Power Trains – chap. 15
Week 13	Power Trains – chap. 15. <b>Exam 3</b> (chap. 11, 12, 13, 14, 15)
++++++	<b>Thanksgiving – No Class</b>
Week 14	Weight, transfer, traction, and safety – chap. 16. Datalink, ECMs, J1939, ATA protocols
Week 15	Student Presentations. Laboratory cleanup

**Final Exam – Tuesday, Dec. 13<sup>th</sup> 8:00 – 9:50 am**