

**Western Illinois University – School of Agriculture**  
**AGTM 368: Agricultural Shop Skills (4)**  
**Course Syllabus – Fall 2017 “Subject to Change”**

**Course Meets:** MW 2:00 – 2:50 pm in KH 307 T/TH 3:00 – 4:50 pm in KH 307/B2  
**Text:** *Agricultural Mechanics: Fundamentals & Applications*, 5<sup>th</sup> Edition, ISBN: 1-4018-5956-9  
**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:** M/W 1:00 to 1:50 or T 1:00 to 2:50 or by appointment

Fall 2017 Course Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
Period 1 (8:00-8:50)		AGTM 360 KH 307-Lecture		AGTM 360 KH 307-Lecture	
Period 2 (9:00-9:50)		AGTM 360 KH 307-Lecture		AGTM 360 KH 307-Lecture	
Period 3 (10:00-10:50)				AGTM 471 KH 307-Lab	
Period 4 (11:00-11:50)				AGTM 471 KH 307-Lab	
Period 5 (12:00-12:50)	AGTM 471 KH 307-Lecture		AGTM 471 KH 307-Lecture		
Period 6 (1:00-1:50)	Office Hour	Office Hour	Office Hour		
Period 7 (2:00-2:50)	AGTM 368 KH 307-Lecture	Office Hour	AGTM 368 KH 307-Lecture		
Period 8 (3:00-3:50)	AGTM 207 KH 307-Lecture	AGTM 368 KH 307/B2-Lab	AGTM 207 KH 307-Lecture	AGTM 368 KH 307/B2-Lab	
Period 9 (4:00-4:50)	AGTM 207 KH 307-Lecture	AGTM 368 KH 307/B2-Lab	AGTM 207 KH 307-Lecture	AGTM 368 KH 307/B2-Lab	

**Course Description:** Principles and skills in metal and welding fabrication, wood working, plumbing, and repairs related to agriculture.

**Course Objectives:**

- Ability to identify defects related to agricultural systems
- Cut, solder, and weld metal for repair or fabrication of agricultural components
- Repair or install new plumbing to support agriculture
- Work with wood for repair or construction related to agriculture

**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.

**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.

**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.

**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%
Final Exam	20%
Quizzes	10%
Paper / Project	20%
Class & Lab Participation	20% (Participation includes attendance, 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%

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

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

**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.

**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.

**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.

**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 \*\*\***

**Schedule:**

Week 1: Introduction to course. Inspection techniques and identification of common defects. (Labs used for completion of inspection and defect identification). Midwest Ag. Industries Exposition.

Week 2: Lecture and labs - Hand tools, fasteners, and hardware. Safety review – shop policies and procedures; allergies and physical problem statement, and shop cleanup. Layout tools and procedures. Selecting, cutting, and shaping wood. Fastening wood – joints, nails, and screws. Finishing wood – dents, holes, stains, and top coat finishes. Portable power tools – nail guns, drills, sanders, grinders, jig saws, saws all, circular saws, and power machines – band saws, table saws, radial arm saws, cutoff saws, planers.

Week 3: (**Labor Day – no class**) Lecture and labs - Identifying ferrous and nonferrous metals, marking, cutting, and bending metal. Fastening metal. Metalworking with power machines. Project planning – elements of a plan, drawing to scale, three-view drawing, Bill of Materials.

Week 4: Lecture and labs - Finish up prior subject matter. **Exam I** – material up to exam including project planning and Bill of Materials calculations. Wood working project selection (review rubric) – Bill of Materials due start of week 5. Repairing and reconditioning tools – wooden and metal surfaces, handles, crowns on chisels. Sharpening tools – preserving temper, knives, chisels, punches, drill bits, and mower blades.

Week 5: Gas heating, cutting, brazing and welding – oxyacetylene torch, components, lighting and adjusting, and cutting and bending steel. MAPP gas. Soldering, brazing, fusion welding, preparing metals for welding. Labs – Work on wood project – project is due before fall break.

Week 6: Gas heating, cutting, brazing and welding (continued) – oxyacetylene torch, components, lighting and adjusting, and cutting and bending steel. MAPP gas. Soldering, brazing, fusion welding, preparing metals for welding. Labs – Work on wood project – project is due before fall break.

Week 7: Arc welding with Shielded Metal Arc Welding (SMAW) – Pros and cons, duty cycle, alternating and direct current, cables, cleaning welds, electrode coding and selection. Safety procedures and personal protection. Labs – Work on wood project – project is due before fall break.

Week 8: (**10/20 – Fall Break – no class**) Finish up SMAW material. Gas Metal Arc Welding (GMAW) (MIG) & Gas Tungsten Metal Arc Welding (GTAW) (TIG) – principles and characteristics, heat and feed settings, welding joints, and backfilling holes. Labs – Work on wood project – project is due before fall break.

Week 9: GMAW (MIG) & GTAW (TIG) – principles and characteristics, heat and feed settings, welding joints, and backfilling holes. Labs – GMAW and GTAW demonstration. Metal working project selection (review rubric) – Bill of Materials due start of week 10. DLA - OOT – No class Oct. 16<sup>th</sup>

Week 10: Lecture and labs - Finish up prior subject matter. **Exam II** – includes material from weeks 4–10. Metal project Bill of Materials due. Start on metal project – due before Thanksgiving break.

Week 11: Plumbing – tools, identifying, selecting, and connecting pipe. Steel pipe, compression fittings, copper pipe, plastic pipe, threaded pipe connections, sweating copper pipe, gluing plastic pipe, and PEX. Labs – Work on metal project – project is due before Thanksgiving break.

Week 12: Plumbing (continued) – tools, identifying, selecting, and connecting pipe. Steel pipe, compression fittings, copper pipe, plastic pipe, threaded pipe connections, sweating copper pipe, gluing plastic pipe, and PEX. Labs – Work on metal project – project is due before Thanksgiving break.

Week 13: Plumbing (continued) – tools, identifying, selecting, and connecting pipe. Steel pipe, compression fittings, copper and plastic pipe, threaded pipe, sweating copper, gluing plastic, and PEX. Labs – Sweating copper & gluing plastic, project / paper due before Thanksgiving break. DLA - OOT – No class Nov. 13<sup>th</sup>

### **Thanksgiving Break – Nov. 20-24 – no class**

Week 14: Lecture and Labs - Plumbing repairs – faucets, float valves, and flush valves. Septic systems, wells and pumps, pressure switches, water meters, shut off valves, filters, booster pumps, hot water systems, drain and vent lines, slope, AAVs, p-traps vs. s-traps, T and Y fittings and strapping, RC custom drain system.

Week 15: Lecture and Labs - Septic systems, wells and pumps, pressure switches, water meters, shut off valves, filters, booster pumps, hot water systems, drain and vent lines, slope, AAVs, p-traps vs. s-traps, T and Y fittings and strapping, RC custom drain system. Irrigation planning, water requirements, irrigation systems – surface, sub-irrigation, trickle, sprinklers, wells, and pumps.

Final Exam: Tuesday, December 12<sup>th</sup> from 3:00 to 4:50 pm in room KH 307