

Western Illinois University – School of Agriculture
AGTM 464: Grain Drying, Handling, and Storage Systems (3)
Course Syllabus – Spring 2025 “Subject to Change”

Course Meets: MWF 11:00 – 11:50 pm in KH 226
Text: *Grain Drying, Handling, and Storage Handbook* – Second Edition - MWPS-13
<https://www-mwps.sws.iastate.edu/> ISBN: 0-89373-071-8
- OR -
Grain Drying, Handling, and Storage Handbook – Third Edition - MWPS-13
<https://www-mwps.sws.iastate.edu/> ISBN: 0-89373-110-2

Instructor: Dr. Daniel Atherton **E-mail:** DL-Atherton@wiu.edu
Office: B 22 Knoblauch Hall **Office Phone:** 309-298-2395
Office Hours: M / W: 10:00 - 10:50 am; T: 10:00 – 11:50 am or by appointment

Course Description: **464 Grain Drying, Handling, and Storage Systems - (3)** Application of engineering principles pertaining to drying, storing, and handling of agricultural products.

Course Objectives:

- Awareness of the strength of materials and reasons for structural failures
- Describe crop quality standards
- Complete moisture calculations and shrinkage management
- Describe methods of drying crops including heated drying and natural/low temperature methods
- Learn guidelines for planning grain handling systems
- Calculate bin volume and determine fan sizing requirements for drying and cooling grain
- Develop proficiency for usage of psychrometric charts
- Explain migration of moisture in grain drying
- Describe methods for transporting grain

Attendance: Attendance is mandatory. If class is missed, please use the OARS system to report your absence (www.wiu.edu/oars). I need the email generated from this system prior to class, not after. 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.

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%
Final Exam	25%
Semester Project	25%
Quizzes	20%

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/

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.

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.”

Attention Education Majors: The changes within the Illinois State Teaching License requirements, students are required to receive a grade of a "C-" or better in this course in order to meet state requirements. With the university's +/- grading system, receiving a grade below a "C-" 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.

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. 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 *****

Dates	Topics
Week 1 (Jan. 13 - 17)	Course Intro., requirements; Unit Conversions
Week 2 (Jan. 20 - 24)	Holiday – No Class; Unit Conversions; Strengths of materials;
Week 3 (Jan. 27 - 31)	Strengths of materials quiz; Grain barge transport; Grain Handling
Week 4 (Feb. 3 - 7)	Grain Handling; Angle of repose, downspouts, bucket elevators
Week 5 (Feb. 10 - 14)	Holiday – No Class; Angle of repose, downspouts, bucket elevators; Bin sizing
Week 6 (Feb. 17 - 21)	Bin sizing; Grain moisture and shrinkage
Week 7 (Feb. 24 - 28)	Grain moisture and shrinkage; OOT – No Class; Review for Exam 1
Week 8 (Mar. 3 - 7)	Exam 1; Science of crop drying I; Semester project assignment
Week 9 (Mar. 10 - 14)	Spring Break – No Class
Week 10 (Mar. 17 - 21)	Semester project assignment (Excel simulation); Science of crop drying I
Week 11 (Mar. 24 - 28)	Moisture migration; Science of crop drying II & III; OOT – No Class;
Week 12 (Mar. 31 - 04)	Science of crop drying III; Semester project checkpoint #1
Week 13 (Apr. 7 - 11)	Grain drying methods
Week 14 (Apr. 14 - 18)	Grain drying methods; OOT – No Class; Semester project checkpoint #2
Week 15 (Apr. 21 - 25)	Presentations; Review for Exam 2;
Week 16 (Apr. 28 – 02)	Exam 2; Review for Final Exam

Final Exam: Wednesday, May 7th from 10:00 to 11:50 pm

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