

MSYM 364 | Agricultural Products Processing and Handling

The Basics:

Credits:	3 hours
Prerequisites:	MSYM 109 or equivalent college physics course
Time and place:	Online asynchronous through Canvas Weekly online optional drop-in Q&A sessions on
Course website:	Available on https://canvas.unl.edu/

Your instructor:

Dr. Deepak R. Keshwani
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How can you connect with me?

Email is a great way for general questions. You'll typically get a response within 24 hours. You can sign up on [MyPLAN](#) to meet with me during my weekly office hours. If these times don't work for you, feel free to email me and we can find a time for us to connect. I will also be offering weekly drop-in Q&A sessions on zoom on Thursdays from 4 to 5 pm, US Central Standard Time

Course goals:

1. Explore how chemical and physical characteristics of agricultural materials are relevant to processing and handling operations and how they impact the end-use and value of the material (maps to program outcome 1)
2. Analyze material drying (and related) systems both qualitatively and quantitatively
3. Analyze material conveying systems both qualitatively and quantitatively (maps to program outcome 1 and 2)
4. Understand how different processing operations and handling operations affect each other and the implications for managing a system containing these operations (maps to program outcome 2)
5. Gain familiarity with current and emerging issues that impact the agricultural supply chain. (maps to program outcome 1)

Relevance to program outcomes:

This course helps achieve the following program learning outcomes:

Outcome 1. Apply hands-on technical skills and knowledge from the natural and social sciences, technology, engineering, and mathematics to analyze and manage mechanized systems relevant to agriculture, food, energy, and water.

Outcome 2. Identify the structure, layout and function of mechanized systems including the relationships between individual components of a system.

This is how your grade will be determined:

Weekly Assignments	120 points
Case Studies	80 points
Semester Project	50 points

Final letter grades based on the final weighted percentage will tentatively be distributed as follows:

>242	A+	224-217	B+	199-192	C+	174-167	D+	<150	F
242-232	A	216-207	B	191-182	C	166-157	D		
231-225	A-	206-200	B-	181-175	C-	156-150	D-		

For Pass/No Pass (PNP) grading option, students must receive a grade of C or better to pass the course.

Things you need to have:

There is no required textbook. You will need a computer to access course content on Canvas. A basic scientific calculator and computer with Microsoft Office will be needed for assignments.

Description of Assignments

Weekly assignments will be posted each week on Canvas. These assignments will be completed by each student without collaborating with other students. They will typically be assigned on Monday and will be due on Friday.

During the semester, there will be three case studies that are more in-depth application of content covered in the class. These will be typically assigned on Monday and be due on Friday. There will be no new content during the week of the case studies.

Additionally, everyone will work on a project during the second half of the semester on a project that includes both a research component and communication component. More information about this project will be provided in class later in the semester.

General course policies:

Some collective values that we will embrace in this course:

- Never compromise our integrity
- Respect each other
- Share responsibility for our learning

Make-up assignments at my discretion and typically are reserved for extenuating personal or professional circumstances. I typically use the [UNL Class Attendance Policy](#) as a guide for these decisions.

Attendance and engagement: Attendance and participation in all class activities is expected. You are expected to comply with the [class attendance policy](#) of the University. We recognize that personal and professional commitments may sometimes conflict with class activities (i.e. life happens). Engage with

instructors when you anticipate such conflicts so we can work together to resolve them. UNL has also published specific [course attendance and engagement requirements for Spring 2022](#)

Instructional continuity: If in-person classes are cancelled, you will be notified of the instructional continuity plan for this class via an announcement on Canvas. More information on instructional continuity can be found at: <https://executivevc.unl.edu/academic-excellence/teaching-resources/instructional-continuity-guidance>.

UNL COVID-19 information: All faculty, staff, and students on campus are expected to follow all campus policies and procedures related to Covid-19 which can be found at <https://covid19.unl.edu/>. Please visit this website which includes information about testing, vaccinations, face coverings, and use of the Safer Community App. If you have questions, please let me know.

Students who have medical documentation of a health risk that cannot be mitigated through vaccination should submit a [COVID-19 Academic Flexibility Request](#). Those with a disability and/or chronic health condition that makes them high risk for the virus should seek support via [Services for Students with Disabilities](#). International students should contact the [International Student and Scholar Office](#) to discuss their options.

I expect us to adhere to guidelines concerning academic integrity outlined in Section 4.2 of the [University's Student Code of Conduct](#). The BSE Department has some resources related to [academic integrity](#) and our [appeals process](#). Contact me if you have questions or need clarification.

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss your accommodations so they can be implemented in a timely manner. SSD contact information: 117 Louise Pound Hall; 402-472-3787

Tips to succeed in this class:

- This is an asynchronous online class. That means you need to be diligent about engaging with the course content every week and completing the assignments
- Take advantage of the weekly drop-in Q&A session. These sessions are designed to answer questions you may have and foster peer-to-peer discussion.
- Take good notes as you engage with the course content on Canvas. Your notes combined with the course content on Canvas will be helpful to you.
- Stay organized with your course materials. You will notice that course content builds throughout the semester and it will be helpful to refer to things earlier in the semester.
- **Make sure all your work on assignments is shown clearly and neatly. For numerical problems, show all relevant calculations, intermediate steps and report units when appropriate. The expectation is that you will “set-up” each numerical problem appropriately before presenting the solution. Your work on assignments and exams will be graded based on clarity of information presented. This will help me give you partial credit!!!!**
- Solutions to assessments will not be posted. I encourage you to either meet with me to get feedback on graded work.

Tentative schedule and list of topics:

Week of	Topics
17-Jan	Course Introduction
24-Jan	Material Characteristics
31-Jan	Moisture Content
7-Feb	Case Study 1
14-Feb	Psychrometrics and Applications
21-Feb	Psychrometrics and Applications
28-Feb	Air flow and Fan Power Requirements
7-Mar	Case Study 2
14-Mar	Spring Break
21-Mar	Equilibrium properties, systems curves & fan curves
28-Mar	Fan HP adjustments, Energy & Power requirements for heating
4-Apr	Case Study 3
11-Apr	Material Conveying Systems
18-Apr	Biological Issues
25-Apr	Sustainability and safety
2-May	Project work time
9-May	Project due
