

## AGRN473: Nutrient Management - Spring 2023

**Instructor:** Dr. Joel Gruver

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**Office Hours:** MW 9-10 and 11-12

**Class meeting location and time:** Knoblauch Hall 305, MWF10-10:50 pm

**Text:** No text – readings from a wide variety of sources will be assigned

### **Course Description:**

This course will begin with a quick review of fertilizer math followed by an exploration of current nutrient management in IL and initiatives to improve nutrient management. Next, we will investigate nutrient management in 2 regions with greater environmental concerns (the Chesapeake Bay watershed and Western Lake Erie basin) that may provide a look into the future of nutrient management in IL. The rest of the course will explore specific opportunities to improve nutrient management e.g., 4R strategies (right source, rate, placement & timing) for fertilizers, manures, biosolids and biological products coupled with conservation practices, improved diagnostic methods and environmental monitoring.

### **Course Objectives:**

At the end of the course, students should be able to:

- Explain the origin and major goals of the INLRS and similar strategies
- Understand roles of diverse stakeholders in improving nutrient management
- Apply 4R concepts to conventional fertilizer and organic nutrient sources
- Diagnose nutrient management opportunities and challenges in conservation cropping systems
- Design on-farm research to improve nutrient management

### **Grade Determination:**

Western Online assignments	40%	A	93 - 100	C	73-76
Take-home final	20%	A-	90 – 92	C-	70-72
Take-home mid-term	15%	B+	87-89	D+	67-69
Interview projects	15 %	B	83-86	D	63-66
Attendance	10 %	B-	80-82	D-	60-62
		C+	77-79	F <	60

Reading questions and/or quantitative problems will be assigned most weeks. Answers should be submitted electronically using Western On-line unless otherwise specified.

\*All\* steps used to solve quantitative problems must be clearly shown. Students will interview a nutrient management stakeholder and submit an interview transcript and commentary. Students will also share a short oral presentation about their interview candidate.

### **Academic honesty:**

The WIU academic integrity policy will be strictly followed in this class.

**NO CHEATING, PLAGIARISM, OR OTHER VIOLATIONS OF THE WIU ACADEMIC INTEGRITY POLICY WILL BE TOLERATED.**

**Lecture schedule:**

<b>Week #</b>	<b>Mon</b>	<b>Wed</b>	<b>Fri</b>	<b>Topic</b>
1	-	1/18	-	Fertilizer Math
2	1/23	1/25	1/27	Nutrient initiatives in IL- part 1
3	1/30	2/1	2/3	Nutrient initiatives in IL- part 2
4	2/6	2/8	2/10	Learning from the Chesapeake Bay
5	-	2/15	2/17	Learning from Lake Erie
6	2/20	2/22	-	Review of 4R concepts
7	2/27	3/1	3/3	Application of 4R concepts
8	3/6	3/8	3/10	Deep dive into P
9	---	---	---	<b>Spring Break</b>
10	3/20	3/22	3/24	Optimizing soil biology - part 1
11	3/27	3/29	3/31	Optimizing soil biology - part 2
12	4/3	4/5	4/7	Intro to manure management
13	4/10	4/12	4/14	Biogas systems
14	4/17	4/19	4/21	Biosolids
15	4/24	4/26	4/28	Future of Nutrient Diagnostics - part 1
16	5/1	5/3	5/5	Future of Nutrient Diagnostics - part 2
18	Monday 5/8 @ 10 am			<b>FINAL EXAM</b>

**Attendance and deadlines:**

Attendance will be monitored using the Western-Online Survey Tool. Students who miss 5 or fewer class sessions, will receive an attendance grade of 100%. Each additional absence will result in a reduction of your attendance grade by 20%. If you miss 10 or more classes, your attendance grade will be 0%. Assignments submitted after designated due dates will only receive partial credit unless an extension was granted by the instructor.

**Student Rights and Responsibilities:**

Detailed information regarding student rights and responsibilities can be found at <http://www.wiu.edu/provost/student/> . It is your responsibility to be familiar with the posted information.

**Special Accommodations:**

In accordance with University policy and the Americans with Disabilities Act (ADA), special accommodations may be made for any student who notifies the instructor of the

need for an accommodation. It is imperative that you take the initiative to bring such needs to my attention, as I am not legally permitted to inquire about the needs of specific students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should let me know the most appropriate procedures to follow in such an emergency. Contact Disability Support Services 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.