

Basic Course Information

Semester:	Summer 2023	Instructor Name:	Dr. Michael Kanyi
Course No. & Title	AG 230 Fertilizers & Soil Amendments	Email:	michael.kanyi@imperial.edu
CRN #:	30160	Webpage (optional):	
Classroom:		Office #:	3114
Class Dates:	6/20/2023 – 7/27/ 2023	Office Hours: Online (email, text, pronto)	
Class Days:	online	Office Phone #:	760-355-5717
Class Times:	online	Emergency Contact:	Tisha Nelson; Industrial Technology Staff Secretary 760-355-6361/6161
Units:	3	Course Format:	Online Asynchronous

Course Description

This course covers the nature of fertilizers and soil amendments, their properties, methods of application, and effects on plants, soil, and the environment. The composition, value, and use of fertilizer materials and soil amendments are discussed. Methods employed in the production, distribution, and application of fertilizers and soil amendments are described. (CSU).

Course Prerequisite(s) and/or Corequisite(s)

None

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Plan out and defend schedule for fertilization of a given crop over the life cycle based on system soil type, stage, and season of growth (ILO2, ILO4).
2. Discuss fertilization system and design as it influences plant nutrient uptake and utilization (ILO1, ILO2, ILO4).
3. Discuss various fertilization systems and benefits/compromises of each system based on a given crop system/soil type/geographic condition (ILO1, ILO2, ILO3, ILO4).

Course Objectives

Measurable course objectives and minimum standards for grade of "C."

Upon satisfactory completion of the course, students will be able to:

1. Describe the effect of the major nutrients and other soil components, including different forms of organic matter, on plant growth, development, and disease resistance.
2. Describe the importance of fertilizers and amendments in agricultural production; describe the process of production, selection, and application of fertilizers and soil amendments for California and Imperial Valley conditions.
3. Describe the basics of soil fertility and maintenance for certified organic production, as well as the production, selection, and application of the common organically approved fertilizers and soil amendments.
4. Describe the environmental impacts of the common methods of fertilizer use.

Textbooks & Other Resources or Links

Havlin, IL, S.L. Tisdale, Werner L. Nelson, and James D. Beaton (2016). *Soil Fertility and Fertilizers: an introduction to nutrient management* (8th ed.): Pearson Education Dorling Kindersley, (Paperback) ISBN-13: 978-9332570344, ISBN-10: 9332570345

[eTextbook](#)

Western Plant Health Assn. (2002). *Western Fertilizer Handbook*. ISBN: 978157766679

Course Requirements and Instructional Methods

Learning activities for this class will include, but not limited to, instructor's guided discussions in canvas, lecture notes posted in canvas, instructional YouTube videos, workplace practical experiences, assignments, quizzes, and tests. Effective participation in all course activities (discussion on canvas) is highly encouraged and will impact the final grade. Critical thinking approach to solving agricultural economic issues at the regional, state, national and global level will be emphasized.

Out of Class Assignments (mainly f2f): The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

This is an online course, and the mode of instruction is asynchronous. You are therefore advised to dedicate ample time to the daily instructional activities and assignments.

Course Grading Based on Course Objectives

Students are advised to acquaint themselves with all rules and regulations of Standards of Student Conduct outlined in the [Imperial Valley College General Catalog](#). For writing assignments, it is expected that each student will demonstrate proficiency in the use of the English Language. Grammatical errors and writing that donot express ideas clearly will affect your grade.

Tests

There will be a **mid-term test (or cumulative quizzes)** and a **final comprehensive test covering all the modules**. Test questions may include true/false, multiple choice, matching, and short answer questions. All students are advised to strictly adhere to the dates and times for the tests which will be communicated. Late submission of assignments must be communicated to the professor before the due date to avoid loss of points.

Late Submission Policy

- Timely submission of all assignments, quizzes, discussion posts, tests and other tasks by the due date is required. Therefore, "no late work and submissions policy" will be followed.
- Minimally, legitimate circumstances that potentially threaten this policy must be communicated and excusal granted in advance of the submission's due date. There will be a 10% deduction of possible points for a late submission with excusal. If a submission is not made by the due date, and there was no prior excusal, then a zero (0) score will result.
There will be no make-up tests.

Distribution of grading points towards the final grade will be as follows

- | | |
|--------------------------------|-----|
| • Discussion | 15% |
| • Research paper & Assignments | 15% |
| • Quizzes/mid-term | 30% |
| • Comprehensive Final Test | 40% |

The final letter grade will be calculated out of the possible total of 100%.

- A= 100-90%
- B = 89-80%
- C = 79-70%
- D = 69-60%
- F =<59%

Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification.

Course Policies

Attendance

- A student who fails to attend the first meeting of this class will be dropped by the instructor as of the first official meeting. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absence exceeds the number of hours the class is scheduled to meet per week may be dropped. **For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.**
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

What does it mean to "attend" an online class?

Attendance is critical to student success and for IVC to use federal aid funds. Acceptable indications of attendance are:

- Student submission of an academic assignment
- Student submission of an exam
- Student participation in an instructor-led Zoom conference
- Documented student interaction with class postings, such as an interactive tutorial or computer-assisted instruction via modules
- A posting by the student showing the student's participation in an assignment created by the instructor
- A posting by the student in a discussion forum showing the student's participation in an online discussion about academic matters
- An email from the student or other documentation showing that the student has initiated contact with a faculty member to ask a question about an academic subject studied in the course.

Logging onto Canvas alone is NOT adequate to demonstrate academic attendance by the student.

Classroom Etiquette (face-to-face on ground class)

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will

be followed as outlined in the [General Catalog](#).

- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend; children are not allowed.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the importance of acknowledging and safeguarding intellectual property. There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Taking and using the words, work, or ideas of others and presenting any of these as your own work is plagiarism. This applies to all work generated by another, whether it be oral, written, or artistic work. Plagiarism may either be deliberate or unintentional.

Other Course Information

Late submissions will not be accepted.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Date or Week	Topics, subtopics, and Textbook Chapters	Module
Week 1 June 20 - 24	Introduction to Soil Fertility <ul style="list-style-type: none"> • Food Production and Land Use (chapter 1) 	1
	Essential Plant Nutrients <ul style="list-style-type: none"> • Macronutrients (chapters, 4,5,6,) • Micronutrients (chapter 8) 	2
Week 2 June 26-July 1	Soil-Plant Relationships (chapter 2) <ul style="list-style-type: none"> • Ion Exchange, CEC, base saturation, fertilizers -introduction. 	3
	Soil Acidity and Alkalinity (chapter 3) <ul style="list-style-type: none"> • Soil pH, acidity, alkalinity, buffering 	4
Week 3 July 3- 8	Primary Macronutrients- Nitrogen (N) (chapter 4) <ul style="list-style-type: none"> • Terminologies, available forms, functions, Nitrogen cycle 	5
	Primary Macronutrients- Phosphorous (P) (chapter 5) <ul style="list-style-type: none"> • Available forms, functions, sources and fertilizers 	6
	Primary Macronutrients- Potassium (K) (chapter 4) <ul style="list-style-type: none"> • Available forms, functions, sources and fertilizers 	7
Week 4 July 10 - 15	Secondary Macronutrients: Calcium (Ca), Magnesium (Mg), & Sulphur (S) (chapter 7)	8
	Plant Micronutrients: Boron (B), Chlorine (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo), Zinc (Zn), and Nickel (Ni.) (Chapter 8)	9
	Soil Fertility and Evaluation (chapter 9) <ul style="list-style-type: none"> • Soil tests and Plant Analysis. 	10
Week 5 July 17 -22	Fertilizer Classification, Selection and Application Methods <ul style="list-style-type: none"> • Fertilizer grade, ratio • Types and forms of fertilizers: Inorganic, organic, straight, compound • Forms of fertilizers: granular, liquid, or gaseous. Application methods: <ul style="list-style-type: none"> • Broadcast, banded, fertigation, foliar, precision application, GPS. 	11
Week 6 July 24 -26	Environmental and Health Impacts of Fertilizers (chapter 12) <ul style="list-style-type: none"> • Soil Health and Organic Crop Production (chapter 12) • Green Manure, cover crops, Compost Manure • The importance of plant-microbe interactions and plant nutrition Fertilizers as a source of nutrient pollution of aquatic systems <ul style="list-style-type: none"> • Eutrophication, marine hypoxia and dead zones • Nutrient overloading from dairy and feedlot waste disposal • Sewage sludge and contaminants • Environmental Impacts of Fertilizers 	12
	Economics and importance of fertilizer use	
	Fertilizer Calculations	13
Final Test July 26	<ul style="list-style-type: none"> • Final Test (All modules) 	

Havlin, IL, S.L. Tisdale, Werner L. Nelson, and James D. Beaton (2016). *Soil Fertility and Fertilizers: an introduction to nutrient management* (8th ed.): Pearson Education Dorling Kindersley, (Paperback) ISBN-13: 978-9332570344, ISBN-10: 9332570345 [eTextbook](#)

Subject to change without prior notice

This syllabus is subject to change without notice. You're therefore advised to follow the instructions provided at the beginning of every weekly module.