

Basic Course Information

Semester:	Fall 2019	Instructor Name:	Dr. Michael Kanyi
Course No. & Title	AG 120: Soil Science	Email:	michael.kanyi@imperial.edu
CRN #:	11203	Webpage (optional):	
Classroom:	2732	Office #:	3114/2732
Semester Dates:	August 19, 2019 – Dec 14, 2019	Office Hours:	MW 12:45pm - 1:45pm TR 10:15am - 11:15am
Class Days:	Monday & Wednesday	Office Phone #:	760-355-5717
Class Times:	Monday 9:00 am – 11:10 am Wednesday 8:00 am – 11:10 am	Emergency Contact:	Tisha Nelson, Economic & Workforce Development (760) 355-6361/ (760) 355-6161
Units:	3		

Course Description

This course provides a basic knowledge of the physical, chemical, and biological properties of soils and their characteristics. Includes fundamental soil properties, soil-plant relationships, soil formation, fertilization and soil management, salinity, pH, erosion management, soil moisture and non-agricultural uses. Laboratory required. Laboratory topics include soil type, classification, soil reaction, soil fertility and physical properties of soil. (CSU, UC, UofA)

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

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. Identify soil crop compatibility via research and reporting information obtained from lecture, journal study and text materials in either a written or verbal manner by assigned completion date (ILO1, ILO2, ILO3, ILO4).
2. Conduct lab analysis using prescribed protocols on known samples to derive accurate & repeatable results that are reported in a useful format (ILO1, ILO2, ILO3, ILO4).
3. Develop an accurate and useful recommendation for soil application or amendment for desired crop production within a reasonable soil/crop interaction (ILO1, ILO2, ILO4).

Course Objectives

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

1. Analyze local soil quality as affected by human and natural activities and explain local geographical features and their relationship to local soils.
2. Describe and identify the textural class of a soil by feel and laboratory procedures.
3. Evaluate parent rocks and other soil forming processes influence on local and global soils.

4. Describe the physical, chemical, and biological properties of soils and understand their formation and why soils are reservoirs for nutrients, water, and microscopic life. To effectively manage these properties for sustained productivity.
5. Understand the methods and means by which organic matter may be added to the soil and how it decomposes to maintain and stimulate soil health.
6. Describe the chemical elements necessary for plant growth, identify common deficiency and toxicity symptoms, and keep the soil in an adequate supply and balance.
7. Measure and understand the effects and alleviation of soil compaction in crop production situations.
8. Demonstrate how to determine a Soil Storie Index Rating and a Natural Resources Conservation Service land capability class.
9. Understand the effects of salts on soil structure, pH, productivity, and drainage.
10. Describe use, importance, and function of soil maps utilizing township range and GIS at the local, state, and global levels.

Textbooks & Other Resources or Links

Required Textbooks

- Plaster, E., J. (2014). Soil Science and Management 6th ed. Cengage Learning ISBN: 978-0840024329.
- Brady, N. C. & Weil, R. (2017). Nature and Properties of Soils (15th ed.): Pearson ISBN-13: 978-0133254488; ISBN-10: 9780133254488

Other Recommended Books

- Dingus, D.D. Soil Science Laboratory Manual. Prentice Hall, 00-01-1999
- Cheng Liu 2009. Soil Properties: Testing, Measurement, and Evaluation, 6/E. Prentice Hall ISBN: 9780136141235.
- Havlin, IL, S.L. Tisdale, Werner L. Nelson, and James D. Beaton 2005. Soil Fertility and Fertilizers: An Introduction to Nutrient Management 7th. Prentice Hall ISBN: 978-0130278241.

Course Requirements and Instructional Methods

Learning activities for this class will include, but not limited to, instructor's guided discussions, lecture, lab and field practical experience, individual and group presentations, assignments, and tests. **Participation in class learning activities is highly encouraged and will have a significant effect on the final grade.** Critical thinking approach in addressing agricultural business organization at the regional, state, national and global levels will be emphasized.

Out of Class Assignments: 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.

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 do not express ideas clearly will affect your grade.

Individual Research Paper and Presentation

There will be one research/term paper (100 point). Some class time may be set aside for this task. However, students might need some extra time outside the set class time to complete their work. Details about the paper and presentation will be communicated in class.

Field activities, Lab Activities, Participation Random Quizzes

Students will participate in outside class activities, demonstrations and lab work. Participation is mandatory. There will be random quizzes that will be graded as participation.

Tests

There will be two mid-term tests and a comprehensive final test. Tests may include true/false, short answer, multiple choice, and short essay questions. All students are advised to strictly adhere to the dates and times for the tests which will be communicated. There will be no make-up tests.

Distribution of grading points

- Research Paper and Presentation 100 points
- Field, Lab activities, participation quizzes 150 points
- Mid-term tests (2) 200 points
- Final Exams 100 points

Final grade will be calculated out of possible 550 points (100%).

Grading

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

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 exceed 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.

Classroom Etiquette

- **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, including children.

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 important 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.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **CANVAS LMS.** Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: Canvas Student Login. The Canvas Student Guides Site provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- **Library Services.** There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services.** Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information.

Veteran's Center

The mission of the IVC Military and Veteran Success Center is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are

particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College’s success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students’ access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC’s Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Course Syllabus		
Chapter	Topic, Activity, and/or Assignment	Book page & Tests
Chapter 1	Introduction. Importance of soil in the world (also in California, Imperial Valley) <ul style="list-style-type: none"> • Ecological functions of soil and its role in recycling resources needed for plant growth • Soil constituents and soil's three-phase system • Land use in the United States 	1
Chapter 2	Soil Origin and Development <ul style="list-style-type: none"> • The soil body • Soil formation process • Soil Profile 	25
Chapter 3	Soil classification and survey <ul style="list-style-type: none"> • USDA soil classification system • Land/soil capability classes • Geographical Information Systems (GIS) -CIMIS 	47
Test 1	Test 1	Test 1
Chapter 4	Physical properties of soil <ul style="list-style-type: none"> • Soil texture • Soil density; bulk and particle density • Permeability • Soil structure 	67
Chapter 5	Soil Biology <ul style="list-style-type: none"> • Soil and food chain and food web 	103
Chapter 6	Soil organic matter <ul style="list-style-type: none"> • Immobilization • Mineralization • Role of organic matter 	135
Chapter 7	Soil water <ul style="list-style-type: none"> • Forces and types of soil water • Functions of water in plants 	157
Chapter 8	Water use and conservation <ul style="list-style-type: none"> • Hydrologic cycle • Water resources in the United States 	182
Chapter 9	Drainage and Irrigation <ul style="list-style-type: none"> • Methods of irrigation • Wetlands 	198
Chapter 10	Soil fertility and soil chemistry <ul style="list-style-type: none"> • The essential elements • Cation exchange capacity (CEC) 	224
Chapter 11	Soil reaction <ul style="list-style-type: none"> • Salinity • Soil pH 	247

Imperial Valley College AG 120 – Soil Science Course Syllabus

Course Syllabus		
	<ul style="list-style-type: none"> • Liming 	
Chapter 12	Plant Nutrition <ul style="list-style-type: none"> • Macro and micro nutrients 	280
Test 2	Test 2	Test 2
Chapter 13	Soil sampling and testing	306
Chapter 14	Fertilizers <ul style="list-style-type: none"> • Forms of fertilizers • Fertilizer calculations • Fertilizer application 	322
Chapter 15	Organic manures and amendments <ul style="list-style-type: none"> • Composting • Biosolids 	347
Chapter 16	Tillage and cropping systems	367
Chapter 17	Horticultural uses of soil	386
Chapter 18	Soil conservation <ul style="list-style-type: none"> • Soil erosion and prevention 	407
Chapter 19	Urban soil and their characteristics	439
Chapter 20	Government Agencies and Programs on soil use and management <ul style="list-style-type: none"> • USDA • Cooperative State Research, Education, and Extension Service (CSREES) 	458
Final Test	Final Comprehensive Test	Final

*** This schedule will be reviewed in class to include dates for the tests, assignments, and due dates. Amendments will be communicated in class and/or in canvas.*