

**Basic Course Information**

Semester:	Fall 2019	Instructor Name:	Dr. Michael Kanyi
Course No. & Title	AG 140 Principles of Plant Science	Email:	michael.kanyi@imperial.edu
CRN #:	11206	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 - 11:11am
Class Days:	Tuesday & Thursday	Office Phone #:	760-355-5717
Class Times:	TR 1:00 pm – 4:10 pm	Emergency Contact:	Tisha Nelson Economic & Workforce Development (760) 355-6361/ (760) 355-6161
Units:	4		

**Course Description**

An introduction to plant science that examines agricultural, forest, landscape, and other significant uses of plants. Included are structure, growth processes, propagation, physiology, genetic improvement and biotechnology, ecology, soil environment, biological competitors, and symbionts of plants. The production, harvest, and utilization of the principle crops grown in California and the Imperial Valley will be included. Laboratory work is required. (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 and discuss basic needs of plant crops found in Imperial County, California & major crop producing states in the US (ILO1, ILO2, ILO4).
2. Accurately discuss and explain a crop rotation program as well as the benefits that are derived from that production system (ILO1, ILO2, ILO4).
3. Identify and discuss major crop commodities grown in Imperial county as well as the season that those crops are planted and harvested (ILO1, ILO2, ILO4).
4. Identify and discuss basic pest avoidance procedures for commonly grown crops in the Imperial county (ILO1, ILO2, ILO4).

**Course Objectives**

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

1. Understand human relationship with plants. Recognize the economic importance of agriculture and forestry; the development of cultivated species; agroecology, and the role of the production of crop plants in feeding the world's population.

2. Understand fundamentals of botany and plant physiology as they pertain to plant classification, structure, growth, economic botany and post-harvest physiology.
3. Understand the environmental and economic factors involved in plant production systems. Relate to plant production the environmental parameters of light, temperature, soil, water, pests and disease, as well as such economic factors as markets and transportation, and ecological factors such as local-scale biodiversity and invasions by exotics.
4. Understand plant improvement, including plant breeding, seed production, and basic processes in plant biotechnology.
5. Understand the issues involved in plant transgenics including food safety and genetic integrity of ecological systems and non-transgenic crops.
6. Describe the important plant and crop systems such as large-scale industrialized crop production, timber production, organic farming, hothouse production, tropical agriculture and forestry, gardening and landscaping, plants as art and for decoration.
7. Understand the basic principles of soil management as they relate to soil properties, plant nutrition, fertilization, crop rotation, multiple and relay cropping, tillage, and soil degradation.
8. Understand the basic principles of the management of weeds, arthropods, and pathogens.
9. Understand the basic principles of irrigation as they pertain to crop including types of irrigation, crop water use, and drainage.
10. Recognize areas of harvest and post-harvest handling as they pertain to the different types of agricultural crops; value added strategies for plants.
11. Describe the scientific method and explain its application in solving problems in plant and soil science.

### Textbooks & Other Resources or Links

#### Required Text Book

- Glass, M., & Parker, R. 2009. *Fundamentals of Plant Science*, (1<sup>st</sup> ed). Cengage Learning ISBN: 9781418000813.
- Bidlack, J. E., & Jansky, S. H. (2018). *Stern's Introductory Plant Biology* (14th ed.): McGraw-Hill Publishing ISBN13: 9781259682742; ISBN10: 1259682749
- McMahon, Margaret J., Rubatzky, Vincent E. (2020). *Hartman's Plant Science: Growth, Development, and Utilization of Cultivated Plants* (6th ed.): Pearson/Prentice Hall

#### Other Recommended Books

- Allaby, M. (2006). *A Dictionary of Plant Sciences (Oxford Paperback Reference)* Oxford University Press
- McMahon, Margaret J., Rubatzky, Vincent E. (2007). *Hartman's Plant Science: Growth, Development, and Utilization of Cultivated Plants* 4th. Pearson/Prentice Hall
- Parker, R. (2003). *Introduction to Plant Science: Revised Edition* Thomson Delmar Learning

### 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.

### *Assigned Individual Research Project/ Term Paper and Presentation*

There will be one term paper write-up. Instructions for this research project and presentation, including due dates, will be communicated in class.

### *Practical, 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.

### *Exams*

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.

### *Distribution of grading points*

- |  |            |
|--|------------|
| • Term paper/project and presentation              | 100 points |
| • Practical lab work, participation random quizzes | 200 points |
| • Mid-term tests (2)                               | 200 points |
| • Comprehensive final test                         | 100 points |

### *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; € 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 using 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](mailto: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](mailto: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.

<b>Course Syllabus</b>		
<b>Chapter</b>	<b>Topic, Activity, and/or Assignment</b>	<b>Pages/Due Dates/Tests</b>
<b>Chapter 1</b>	Plants and Nature: Human relationship with plants <ul style="list-style-type: none"> <li>• The art and science of plants for human benefit</li> <li>• Aesthetic and recreational</li> <li>• Medicine and research</li> <li>• The Scientific Method</li> </ul>	2
<b>Chapter 2</b>	Plants Ecology <ul style="list-style-type: none"> <li>• Ecology</li> <li>• Ecological succession</li> <li>• Trophic levels</li> </ul>	18
<b>Chapter 3</b>	Biomes <ul style="list-style-type: none"> <li>• Terrestrial biomes</li> <li>• Aquatic biomes</li> </ul>	48
<b>Test 1</b>	<b>Test 1</b>	<b>Test 1</b>
<b>Chapter 4 &amp; 8</b>	Plant Morphology: Form and structure <ul style="list-style-type: none"> <li>• Vegetative morphology and reproduction</li> <li>• Stem morphology</li> <li>• Leaf morphology</li> <li>• Root morphology and function</li> </ul>	78
<b>Chapter 5</b>	Plant reproduction <ul style="list-style-type: none"> <li>• Flower morphology</li> <li>• Monocots</li> <li>• Dicots</li> <li>• Seed germination</li> <li>• Common plants in the United States</li> </ul>	109
<b>Chapter 6</b>	Plant cell <ul style="list-style-type: none"> <li>• Prokaryotic cell</li> <li>• Basic Eukaryotic cell structure</li> </ul>	139
<b>Chapter 7 &amp; 8</b>	Growth: Cells multiplication and growth <ul style="list-style-type: none"> <li>• Genes</li> <li>• DNA</li> <li>• Chromosomes</li> <li>• Replication</li> <li>• Cells to tissues</li> <li>• Wood structure</li> <li>• Secondary growth</li> <li>• Uses wood</li> </ul>	153 & 193
<b>Chapter 9</b>	Soil-water relationship <ul style="list-style-type: none"> <li>• Plant nutrients; macro &amp; micronutrients</li> <li>• Fertilizers</li> <li>• Nutrient availability</li> </ul>	212

<b>Course Syllabus</b>		
	<ul style="list-style-type: none"> <li>• Assimilation</li> </ul>	
<b>Chapter 10</b>	<ul style="list-style-type: none"> <li>• Energy</li> <li>• Photosynthesis</li> <li>• Respiration</li> </ul>	250
<b>Test 2</b>	<b>Test 2</b>	<b>Test 2</b>
<b>Chapter 11</b>	Plant growth and development <ul style="list-style-type: none"> <li>• Auxins</li> <li>• Gibberellins</li> <li>• Ethylene</li> <li>• Cytokinin</li> <li>• Apical dominance</li> <li>• Abscisic acid</li> </ul>	282
<b>Chapter 12, 13 &amp; 14</b>	Sexual reproduction <ul style="list-style-type: none"> <li>• Gene transfer</li> <li>• Genetic engineering</li> <li>• Transgenic plants</li> <li>• Vascular plants</li> </ul>	312, 341 & 367
	Pest management <ul style="list-style-type: none"> <li>• Cultural</li> <li>• Mechanical</li> <li>• Chemical</li> <li>• Biological</li> <li>• IPM</li> </ul>	
	<ul style="list-style-type: none"> <li>• Types of irrigation</li> </ul>	
<b>Chapter 15 &amp; 22</b>	Early agriculture Modern agriculture	402 & 605
<b>Chapter 16, 17 &amp; 18</b>	Crop management <ul style="list-style-type: none"> <li>• Vegetable crops</li> <li>• Fruits</li> <li>• Nuts</li> </ul>	451, 474 & 498
<b>Chapter 19 &amp; 20</b>	Crop management <ul style="list-style-type: none"> <li>• Flowers</li> <li>• Grasses</li> </ul>	513 & 538
<b>Final Test</b>	<b>Final Comprehensive Test</b>	<b>Final</b>

\*\*\*This syllabus is subject to change \*\*\*