



Basic Course Information

Semester:	Spring 2026	Instructor Name:	Shelby Drye
Course No. & Title	AG 140: Principles of Plant Science	Email:	shelby.drye@imperial.edu
CRN #:	21251	Webpage (optional):	Imperial.edu
Classroom:	Building 2700, Room 2732	Office	
Class Dates:	Feb 18, 2026 – June 10, 2026	Office hours: (Virtual: Canvas inbox text, IVC email, pronto, office phone call)	Monday & Wednesday, 5pm-6pm
Class Days:	Monday & Wednesday	Office Phone #:	
Class Times:	Lecture 6:00pm -7:25am Lab 7:35am - 9:00pm	Emergency Contact:	Tisha Nelson, Economic & Workforce Development (760)355-6361
Units:	4	Format/Modality	Face-to-Face

Course Description

An introduction to plant science that examines agriculture, 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 principal crops grown in California and the Imperial Valley will be included. Laboratory work is required. (*For Labster Simulations, you will require a computer and internet*). (C-ID AG-PS 106 L) CSU/UC).

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

Although there is no prerequisite requirement for this course, adequate knowledge of general high school biology is expected.

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 the 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 Imperial County (ILO1, ILO2, ILO4).

Course Objectives

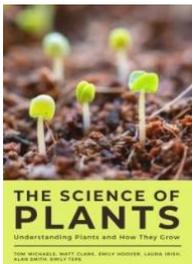
Upon satisfactory completion of the course, students will be able to:

1. Understand human relationships 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 the fundamentals of botany and plant physiology of 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, and 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 crops 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 crops, and value-added strategies for plants.
11. Describe the scientific method and explain its application in solving problems in plant and soil science.

OER Textbook & Other Resources or Links

Required OER Textbooks:

Libraries: Michaels, T., Clark, M., Hoover, E., Irish, L., Smith, A., and Tepe, E. (2022). [*The Science of Plants: Understanding Plants and How They Grow*](#). University of Minnesota Press. ISBN 13: 9781946135872



LibreTexts: Michaels, T., Clark, M., Hoover, E., Irish, L., Smith, A., and Tepe, E. (2022). [*The Science of Plants: Understanding Plants and How They Grow*](#). University of Minnesota Press. ISBN 13: 9781946135872



Clark, M. A., Choi, J., & Douglas, M. [Biology 2e](#). [Openstax](#)

Optional Recommended Textbook:

McMahon, Margaret J., Rubatzky, Vincent E. (2020). *Hartman's Plant Science: Growth, Development, and Utilization of Cultivated Plants* (6th ed.): Pearson/Prentice Hall

Course Requirements and Instructional Methods

- Notes posted in Canvas, instructional YouTube videos, simulated laboratory activities, outside/field practical experience, assignments, quizzes, and tests. Effective participation in all course activities (discussion in Canvas) is highly encouraged and will impact the final grade. Critical thinking approaches to solving agricultural economic issues at the regional, state, national, and global levels 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 for a semester. WASC has adopted a similar requirement.
- You will conduct labs that will require a computer (not a mobile phone) and reliable internet.

Work-Based Learning – Opportunities for Extra Credit

Work-Based Learning (WBL) allows students to apply classroom content in professional settings while gaining real-world experiences. These opportunities will provide you with a deeper, more engaging, and relevant learning environment. You are encouraged to participate in the following WBL activities to provide you with the opportunity to explore career options in Agriculture and other related fields.

WBL Activity	WBL Activity Description
Guest Speakers and industry presentations	Guest speakers and industry presentations provide an opportunity for students to hear firsthand about a particular occupation, the necessary preparation and required knowledge the occupation requires, and other interesting information from current practitioners in Ag.
Career Expo on Thursday, March 26, 2026 10AM-1PM @ IVC	Students are encouraged to participate in Career Expo to meet with employers, recruiters, companies, and organizations related to field of study.



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Course Grading Based on Course Objectives

This grading policy provides opportunities for students to demonstrate their knowledge through exams, assignments, quizzes, and participation. It also incentivizes regular attendance and active engagement in the class.

Exams (280 points):

- Mid Term Exam: 140 points
- Final Exam: 140 points

Assignments and Group Project (300 points):

- Weekly Assignments (plant collection -12): 120 points (12 assignments at 10 points each)
- Group Project Presentation and Essay (with Mounting box and labels): 180 points

Quizzes (120 points):

- In-Class Quizzes: 120 points (4 quizzes at 30 points each)

Participation and Attendance (300 points):

- Attendance and Participation: 300 points (10 points per class session, including engagement in class discussion, activities, and group work) Note, there are 30 class sessions.

Grading Scale:

- 900 - 1000 points: A
- 800 - 899 points: B
- 700 - 799 points: C
- 600 - 699 points: D
- Below 600 points: F

Projects, Exams, and Assignments

Exams Throughout the course, you will be assigned **two exams, a midterm and a final exam**, based on concepts we've covered in the course. These reviews will contain a mix of multiple choice, fill-in-the-blank, and free response questions. They are designed to help you keep up with the readings, review course material in preparation for the exams, and think more deeply about the course content. See the Course Schedule below for the dates of these exams.

Assignments and Group Project: Creating a **plant pinning box** is a simple and effective way to preserve and display specimens. Start with a sturdy box and foam padding. Carefully pin each specimen onto the foam, labeling them with species details. Once pinned and labeled, securely close the box to protect it. This box serves as both an educational tool and a beautiful display of nature's diversity.

Quizzes: There will be **4 in-class quizzes** in the course, which will assess your knowledge as the group moves through the class. The quizzes will consist of multiple choice and fill-in-the-blank questions.

Participation and Attendance: To earn **300 points for attendance and participation**, consistently attend classes and actively engage in discussions and activities. Arrive on time and participate by asking questions, contributing to discussions, and completing assigned tasks.



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Students are expected to come prepared and fully engaged for every session. This includes completing all assigned readings and videos, submitting assignments on time, and collaborating with classmates, which contribute towards the overall participation score.

Should an excusable absence occur, students are required to notify the instructor in advance whenever it is feasible to arrange for makeup work. However, failure to notify the instructor promptly or absence for non-excusable reasons will result in a zero for any in-class work. **Please note that personal travel or vacations do not qualify as excusable absences. Students are strongly encouraged to proactively communicate any difficulties they encounter in meeting deadlines, thereby enabling timely intervention and exploration of potential solutions.**

In the event of a missed class, students are encouraged to reach out to classmates for notes, as instructors do not provide class notes. If further clarification is needed, students are welcome to attend office hours or schedule a meeting with the instructor, prepared with specific questions for discussion.

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.

Accessibility Statement

Imperial Valley College is committed to providing an accessible learning experience for all students, regardless of course modality. Every effort has been made to ensure that this course complies with all state and federal accessibility regulations, including Section 508 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Title 5 of the California Code of Regulations. However, if you encounter any content that is not accessible, please contact your instructor or the area dean for assistance. If you have specific accommodations through *DSPS*, contact them for additional assistance.

We are here to support you and ensure that you have equal access to all course materials.

Course Policies

Attendance

A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class.

It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.



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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 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.

Other Course Information

Late submissions will not be accepted.

Financial Aid

Your Grades Matter! To continue to receive financial aid, you must meet the Satisfactory Academic Progress (SAP) requirement. Making SAP means that you are maintaining a 2.0 GPA, you have successfully completed 67% of your coursework, and you will graduate on time. If you do not maintain SAP, you may lose your financial aid. If you have questions, please contact financial aid at finaid@imperial.edu.

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 the [IVC students' resources](#) or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Below is a tentative schedule of topics & assignments for the semester. Readings/videos for each session will be posted on Canvas or given to you in class as a take home assignment and must be completed before the start of the following class.

Course Dates	Module	Activity, Assignment, and/or Topic
2/18	Introduction	Orientation <ul style="list-style-type: none"> ✔ Syllabus, Course, and canvas ✔ Meet and greet discussion ✔ Student Questionnaire ✔ Tent Cards/Student Names
2/23	Module 1	<ul style="list-style-type: none"> ✔ The Colorado River and Salton Sea
2/25	Module 1.1	Chapter 1: Plants in our Lives <ul style="list-style-type: none"> ✔ 1.1 What is horticulture? ✔ 1.2 Science and Experimentation ✔ 1.3 Plant Parts we Eat Plant Collection on 2/25 (1)
3/02 3/04	Module 2	Chapter 2: Taxonomy and Seed Germination <ul style="list-style-type: none"> ✔ 2.1 Plant Taxonomy ✔ 2.2 Introduction to Seed Germination Plant Collection on 3/04 (2)
3/09 3/11	Module 3	Chapter 3: How Plants Grow, Part 1 <ul style="list-style-type: none"> ✔ 3.1 Leaves ✔ 3.2 Shoots ✔ 3.3 Roots Quiz 1 in-class! 3/11 Plant Collection on 3/11(3)
3/16 3/18	Module 4	Chapter 4: How Plants Grow, Part 2 <ul style="list-style-type: none"> ✔ 4.1 Growth Patterns and Inflorescences ✔ 4.2 Plant Hormones Plant Collection on 3/18 (4)
3/23 3/25	Module 5	Chapter 5: Inside Plants <ul style="list-style-type: none"> ✔ 5.1 Inside Leaves ✔ 5.2 Inside Stems ✔ 5.3 Inside Roots Plant Collection on 3/25 (5)
3/30 4/01	Module 6	Chapter 6: Cells, Tissues, and Woody Growth <ul style="list-style-type: none"> ✔ 6.1 Plant Cells and Tissues ✔ 6.2 Woody Growth Quiz 2 in-class 4/1! Plant Collection on 4/1 (6)

4/05-4/11 Spring Recess (NO CLASS/CAMPUS CLOSED)		
4/13 4/15	Module 7	Chapter 7: Meristems and Flowers <ul style="list-style-type: none"> 🍃 7.1 Meristem Morphology 🍃 7.2 Flower Morphology Plant Collection on 4/15 (7)
4/20 4/22	Module 8	Chapter 8: Fruit <ul style="list-style-type: none"> 🍃 8.1 Fruit Morphology Plant Collection on 4/22 (8)
4/27	Review	<ul style="list-style-type: none"> 🍃 Video 🍃 Mid Term Review
4/29	Mid Term	
5/04 5/06	Module 9 Module 10	Chapter 9: Seeds <ul style="list-style-type: none"> 🍃 9.1 Seed Morphology 🍃 9.2 Seed Physiology Chapter 10: Grafting <ul style="list-style-type: none"> 🍃 10.1 Grafts and Wounds 🍃 10.2 Unique Storage Organs Plant Collection on 5/06 (9)
5/11 5/13	Module 11 Module 12	Chapter 11: Water and Light <ul style="list-style-type: none"> 🍃 11.1 Plants and Water 🍃 11.2 Light and Photosynthesis Chapter 12: Soils, Fertility, and Plant Growth <ul style="list-style-type: none"> 🍃 12.1 Soils, Fertility, and Plant Growth Quiz 3 in-class on 5/13! Plant Collection on 5/13 (10)
5/18 5/20	Module 13	Chapter 13: Sexual Reproduction <ul style="list-style-type: none"> 🍃 13.1 DNA 🍃 13.2 Mitosis 🍃 13.3 Meiosis Plant Collection on 5/20 (11)
5/25 (NO CLASS/CAMPUS CLOSED)		
5/27	Module 14	Chapter 14: Variation and Plant Breeding <ul style="list-style-type: none"> 🍃 14.1 Gametogenesis 🍃 14.2 Inheritance of Big Differences 🍃 14.3 Linkage and Inheritance of Small Differences

		<ul style="list-style-type: none"> 🌿 14.4 Plant Breeding Plant Collection on 5/27 (12)
6/1	Module 15	Chapter 15: Invasive plants and GMOs <ul style="list-style-type: none"> 🌿 15.1 Invasive Plants 🌿 15.2 GMOs Quiz 4 in-class! 6/01
6/03	Lab Projects Due	<ul style="list-style-type: none"> 🌿 Students present lab projects and findings to the class
6/08	Lab Projects Due Lab Report Due	<ul style="list-style-type: none"> 🌿 Students present lab projects and findings to the class 🌿 Lab Report Due (essay)!
6/10		<ul style="list-style-type: none"> 🌿 Final Exam

This schedule is very tentative and can change without notice. You are therefore advised to follow the instructions provided at the start of each module or week. Any changes to the schedule, including tests and due dates, will be communicated.