

COURSE OUTLINE OF RECORD



Palo Verde College

**One College Drive, Blythe, CA 92225
(760) 921-5500**

Course Control Number: 000445858

Course Outline Approval Dates		
	Curriculum Committee	Board of Trustees
Face-to-Face	11/8/12	12/12/12
Correspondence Ed.	N/A	N/A
Distance Ed.	N/A	N/A

I. COURSE INFORMATION

Course Initiator: Solomon Osayande

Subject Area and Course Number: BIO 141		Course Title: Introductory Botany	
New Course <input type="checkbox"/> Revised <input type="checkbox"/> Updated <input checked="" type="checkbox"/>	TOP Code 0402.00	SAM Code E=Non-occupational	Credit Status Request D=Credit-Degree Applicable
Classification Code A=Liberal Arts and Sciences	Noncredit category Y=Not Applicable; Credit Course		Course prior to college level Y=Not applicable
Repeatable (<i>Check box if this course is repeatable</i>) <input type="checkbox"/>	Transfer status A=UC and CSU		Basic Skills N=Not a Basic Skills Course
Semester Units: 4	Lecture Hours: 54 Lab Hours: 54 Clinic/Field Hours:		
Prerequisite: BIO 110 Basics of Biology and MAT 086 or MAT 088 Intermediate Algebra			
Co-requisite: <i>(If course has pre/co-requisites, list here and attach a Prerequisite Justification form)</i>			

II. CATALOG DESCRIPTION:

(Succinctly describe the content)

The course includes a study of the major plant structures, such as roots, stems, leaves, flowers, essentials of plant physiology, plant nutrition, and basic elements of plant taxonomy.

III. COURSE OBJECTIVES:

(Must relate to one or more topics in the course outline)

1. Correlate cell structures with their functions
2. Critically evaluate how cells are the basic structural units of life
3. Outline the varied events leading to the formation of fruits and seeds
4. Compare and contrast mitosis and meiosis and explain the significance of each process
5. Describe and summarize the structures and functions of roots, stems and leaves respectively.
6. Explain how light reaction and dark phase influence photosynthesis
7. Describe scientific methods

IV. STUDENT LEARNING OUTCOMES

(3-5 outcomes to be measured every 3 years)

1. Explain and be able to discuss the varied processes leading to the formation of fruits and seeds.
2. Demonstrate the knowledge of photosynthesis via experimentation and examination.
3. Explain how plants respond to stimuli in terms of phototropism
4. Analyze and describe the structural components and functions of plant cells.

5. Compare and contrast the xylem vessels , the phloems and the process of water uptake.

V. LECTURE CONTENT

(9-10 Topics with 3-5 subtopics each for a 3-unit course)

A. What is plant biology?

1. An overview of plant biology
2. Taxonomy
3. Symbiotic relationship of plants and humans
4. Plants and life

B. Cells

1. Review basic chemistry
2. Cell structures
3. Cell division
4. Cell theory

C. Roots and soils

1. Types of roots
2. Water uptake in soil
3. Minerals uptake

D. Stems

1. Types of stems
2. Xylem
3. Phloem
4. Water and minerals uptake

E. Leaves

1. Types of leaves
2. Stomata and guard cells
3. Structural components of chloroplasts

F. Flowers, Fruits and Seeds

1. Structural components of flowers
2. Pollination and fertilization
3. Formation of fruits and seeds
4. Dispersal of seeds

G. Photosynthesis

1. Release of oxygen
2. Structures of a chloroplast
3. Light reaction
4. Phototropism

H. Kingdom protista

1. Classification
2. Protozoa
3. Algae
4. Fungus-like protists (slime molds)

I. Kingdom Fungi

1. Classification

2. Relationship to humans
3. Dimorphism
4. Alexander Fleming

VI. LAB CONTENT

(5-7 Topics with 3-5 subtopics each for 1-3 units of lab)

- A. Scientific methods
 1. Hypothesis
 2. Experimentation
 3. The cell theory
- B. The microscopes
 1. Simple microscope
 2. Basic skills of light microscope
 3. Electron microscope
- C. The cell structures and functions
 1. Structural components of a plant cell
 2. Functions
 3. Plant cells compared to animal cells
 4. Cell membrane
- D. Photosynthesis
 1. Structural components of chloroplast
 2. Light reactions
 3. Dark reactions
 4. Phototropism
- E. Movement across the cell membrane
 1. Osmosis
 2. Diffusion
 3. Active transport
- F. Survey of the plant kingdom: Angiosperms
 1. Structural components of a flower
 2. Carpel
 3. Stamen
 4. Seeds
 5. Fruits
- G. Survey of the kingdom protista: The algae
 1. Chlorophyta
 2. Rhodophyta
 3. Phaeophyta
 4. Diatoms

VII. METHODS OF INSTRUCTION

(May include any, but do not require all of the following):

- Lecture
- Distributed Education (online, correspondence or hybrid)
- Class and/or small group discussion
- Use of films, videotapes or other media
- Use of written materials, texts, journals, online sources, etc.
- Instructor generated handouts
- Other

VIII. TYPICAL OUT-OF-CLASS ASSIGNMENTS:

A. READING ASSIGNMENTS ARE REQUIRED; GIVE ONE EXAMPLE OF A READING ASSIGNMENT AND STATE HOW YOU WILL KNOW IT WAS DONE, I.E. BE PREPARED TO DISCUSS IN CLASS.

Read the chapter on flowers, fruits, and seeds. Identify and be able to explain in a class discussion the varied processes leading to formation of fruits and seeds.

B. CRITICAL THINKING ASSIGNMENTS ARE REQUIRED; GIVE AN EXAMPLE OF ONE ASSIGNMENT THAT REQUIRES CRITICAL THINKING.

Based on photosynthesis experiment, analyze and interpret the light phase reactions. How does a dark phase affect photosynthesis? Use your observation, analysis and interpretation to illustrate your answer in a one page paper.

C. WRITING ASSIGNMENTS ARE REQUIRED; GIVE ONE SPECIFIC WRITING ASSIGNMENT AND IDENTIFY THE LENGTH.

Read a chapter on angiosperm and write a two page paper on how pollination by butterfly leads to fertilization and ultimately formation of fruits and seeds.

IX. METHODS OF ASSESSMENT

- Exams/Tests
- Quizzes
- Portfolios
- Research Projects
- Oral Presentation
- Papers
- Projects
- Class Participation
- Simulations
- Group Projects
- Class Work
- Lab Work

X. TYPICAL TEXT(S):

(List at least 1-2 choices of text that are no more than five years old. Include the necessary information in the following format: Author's name (last name first), Title underlined. Edition (latest), publisher, year)

Jansky, Shelley. Stern's Introductory Plant Biology, 12th Edition, 2011
Vodopich, Darrells and Moore, Randy. Biology Laboratory Manual, 9th Edition, 2011

XI. OTHER SUPPLIES REQUIRED OF STUDENTS

XII. DISTANCE LEARNING DELIVERY AND CORRESPONDENCE

(Check all that apply)

- Online
- ITV
- Correspondence

A. HOW WILL YOU MAINTAIN EFFECTIVE CONTACT BETWEEN THE INSTRUCTOR AND A STUDENT

(Check all that apply)

- Examinations
- Quizzes
- Essays
- Research papers
- Graded homework assignments
- Syllabus receipt
- Office hours
- Instant messaging
- Synchronous online discussions
- E-mails
- Letters
- Notes
- Phone calls
- Postings on the Bridge

B. DESCRIBE PROCEDURES THAT HELP VERIFY THE INDIVIDUAL SUBMITTING CLASS WORK IS THE SAME INDIVIDUAL ENROLLED IN THE COURSE SECTION

(This information has been provided for you; there is no additional statement necessary)

Consistent with policy elements listed in the ACCJC's "Policy on Distance Education and on Correspondence Education," the College verifies the identity of a student who participates in class or coursework by using a secure log-in and password, proctored examinations, or other technologies or practices that are developed and effective in verifying each student's identification.

C. DESCRIBE PROCEDURES THAT EVALUATE THE READINESS OF A STUDENT TO SUCCEED IN AN ONLINE, ITV OR HYBRID COURSE SECTION

(This information has been provided for you; there is no additional statement necessary)

A short assessment questionnaire will be prepared by the instructor and self-administered by the student to evaluate areas such as working independently, adhering to timelines, and familiarity with working online and with computer technology. The student will use the resulting score to evaluate his or her readiness to take the course in a correspondence or hybrid correspondence instructional mode.

SIGNATURES:

COURSE INITIATOR: _____ DATE: _____

LIBRARY: _____ DATE: _____

CHAIR OF CURRICULUM COMMITTEE: _____ **DATE:** _____

SUPERINTENDENT/PRESIDENT: _____ **DATE:** _____