

**NATURAL SCIENCES DEPARTMENT
HOSTOS COMMUNITY COLLEGE
OF THE CITY UNIVERSITY OF NEW YORK**

SYLLABUS FOR PLANTS AND SOCIETY BIO 130 (SW)

3 credits, 3 hours

Pre-requisite: BIO 110

Co-requisites if taught in English: ESL 91 or ENG 91. If taught in Spanish: SPA 222

Offered in English and in Spanish.

COURSE DESCRIPTION:

This course introduces students to the world of plants and their vital role in human life. Students will learn about plant morphology, how plants reproduce, and how they obtain energy in order to survive. The course emphasizes the role of plants in human society as sources of food, medicine, fiber, and fuel; it provides a critical review of science, technology, and the environment, in relation to plant domestication and current world food, medicine and fiber production. Social implications associated with biological and technical aspects of crop production in modern society will be studied in this class, too. Students will find many opportunities for enrichment on topics that relate plants to historical developments and environmental issues, and will have an opportunity to learn how personal choices impact global vegetation resources.

TEXTBOOK: CUSTOM VERSION Plants and Society. E. Levetin and K. McMahon, 6th Edition. McGraw-Hill. 2011. ISBN 9781308352053

	<u>SUBJECT AREAS</u>	<u>TEXT CHAPTERS</u>	<u>READINGS</u>
1.	<u>INTRODUCTION TO PLANT LIFE</u> Introduction: What is a plant?	1	2-18
	Plant Cell	2	19-27
	Stems, Roots, Leaves	3	28-46
	Plant Life Cycle: Flowers	5	69-83
	Plant Life Cycle: Fruits	6	84-98
2	<u>PLANTS AS A FOOD SOURCE</u> Human Nutrition	10	150-171
	Origins of Agriculture	11	172-182
	The grasses	12	183-204
	Legumes	13	205-217
	Starchy Staples	14	218-232
	Feeding a Hungry World	15	233-260

3.	<u>COMMERCIAL PRODUCTS DERIVED FROM PLANTS</u>	16	261-276
	Stimulating Beverages		
	Herbs and Spices	17	277-295
	Materials: Cloth, Wood, and Paper	18	296-320
4	<u>PLANTS IN HUMAN HEALTH</u>	19	321-340
	Medicinal Plants		
	Psychoactive Plants	20	341-360

COURSE CONTENTS

- I. INTRODUCTION: WHAT IS A PLANT?**
 - Plants and Human Society
 - The flowering plants
 - The non-flowering plants
- II. PLANT CELL**
 - Early studies of cells
 - The cell wall; cell membrane, and cell organelles
- III. STEMS, ROOTS, LEAVES**
 - Plant tissues
 - Plant organs: Stems, Roots, and Leaves
- IV. FLOWERS**
 - Floral organs
 - Meiosis in flowering plants
 - Pollination and Fertilization
- V. FRUITS: SUPERMARKET BOTANY**
 - Fruit types
 - Seed structure and germination
 - Dicot and Monocot seeds
 - Edible fruits
- VI. NAMING PLANTS**
 - Early History of plant classification
 - How plants are named
 - Taxonomic Hierarchy
- VII. AGRICULTURE**
 - Origins of agriculture
 - Foraging societies and their diets
 - Characteristics of domesticated plants
 - Centers of plants domestication
- VIII. WHEAT & MAIZE**

Characteristics of the Grass Family
Grains – origin and evolution
Other important grains and grasses

IX. LEGUMES

Characteristics of the Legume Family
Important legume food crops
Other legumes of interest

X. STARCHES

Storage organs: modified stems, storage roots
White potato: South American origins
Other important starchy staples

XI. FEEDING THE WORLD

Crop improvement
The Green Revolution
Alternative crops: The search for new foods

XII. STIMULANT BEVERAGES

Coffee: Arabian drink, plantations, varieties
Tea: Origins, cultivation and processing
Chocolate: Food of Gods, cultivation and processing
Other caffeine beverages

XIII. HERBS AND SPICES

Essential oils
History of spices
Herbs and spices of economic importance

XIV. CLOTH AND FIBERS

Fibers: types of fiber, cotton, linen, rayon
Other fibers
Wood and wood products: Paper: pulp and paper making

XV. MEDICINAL PLANTS

History of Plants in Medicine
Active principle in plants: alkaloids and Glycosides
Medicinal plants; Herbal remedies

XVI. PSYCHOACTIVE DRUGS

History of Psychoactive plants
The Tropane alkaloids