**Lompoc High School**

**Animal & Plant Science**

**Meets the UC “g” Admission Requirement**

# Approved 2002

**I. COURSE TITLE: Animal & Plant Science**

**II. TEXTBOOK:**  Insert Your Biology Textbook Here

Animal Science 7th Edition

Plant & Crop Production 5th Edition

**III. PREREQUISITE:** To be taken with Math A (Integrated Algebra) and students

must have an approved SAE, as verified by the instructor of the class.

**IV. Course Description:**

A. Animal and Plant Science is a one-year, laboratory science course, designed for the college-bound students with career interests in agriculture. Using agriculture as the learning vehicle, the course emphasizes the principles, central concepts and inter-relationships among the following topics: molecular and cellular aspect of life, the chemical and structural basis of life, energetic of life, growth and reproduction in plants and animal, evolution of modern plants and domestic livestock species, plant and animal genetic, taxonomy of modern agricultural plants and animals, animal behavior, ecological relationship among plants, animal, humans and the environment, nutrition in animals, health and disease in animals, and the similarities between animals and humans. The course is centered around an extensive laboratory component in order to connect the big ideas of life science with agriculture applications, earth and physical science principles, and other curricular areas, including written and oral reporting skills.

**V. UNITS OF INSTRUCTION:**

**Unit 1: Agriculture Effects on Environmental Ecology**

Categories and sources of pollution

Conserving natural resources

Agricultural practices beneficial/harmful to the environment

Alternatives

**Unit 11: Animal Health and Sanitation**

Diseases and parasites

Predisposing conditions

Biologic preparations, antibiotics, drugs and other medication

Sanitation requirements and procedures

**Unit III: Anatomy and Physiology of Farm Animals**

Body System

Physiological function of hormones

Process of Digestion

Function of reproductive tracts

**Unit IV: Livestock Breeding and Genetics**

Cell theory of inheritance

Heritability percentages of traits

Mitosis and meiosis applied to animal growth

Artificial Insemination

Embryo transplants

**Unit V: Livestock Nutrition and Feed**

Classes of nutrients and actives

Animal nutrient requirements

Health problems related to nutrition

Balance ration and feed practices

**Unit VI: Plant Physiology and Growth**

Structure and development of plants

Plant growth requirements

Environmental factors on growth and physiology

Optimum conditions and prescribed practices

**Unit VII: Plant Pathology and Entomology**

Common plant diseases

Effects on development and growth

Methods of control

Order of insects

Insect structure and development

**Unit VIII: Soils**

Components, functions, economic uses, and relationship to the earth

Geologic cycle

Chemical and physical and growth

Soil formation

Local conditions and factors

**Unit IX: Plant Nutrition and Fertilizers**

Primary, secondary and micronutrients

Pure form vs. Commercial form nutrients

Organic, inorganic and natural organic fertilizers

Function of nutrients in plant growth

pH requirements and effect on plant life

Nitrogen fixation and absorption

**Unit X : Pest Management**

Invertebrates, vertebrates and weed pest

Cultural, Chemical, and biological controls

Introduction of integrated pest management

Organo-phosphates and chlorinated hydrocarbons and their effect on body system

Environmental considerations

**Unit XI: Wildlife & Livestock Management**

History and principles

Habitat destruction

Economic feasibility and current trends

New scientific principles

**Unit XII: Agriculture Research Project**

Development of viable agriculture project by student

Statistical management of project by students

Instructional coordination of project by instructor

Analysis of project results by students & instructor

**Learning Activities**

Learning activities include reading and written assignments as well as laboratory experiments. Discussion and guest speakers from industry will be utilized. Weekly laboratory exercises will be done in the classroom and field with on site visitation at various areas of interest (i.e. veterinary hospitals, dairies and local farms and ranches).

Slides charts filmstrips, films, video and live prepared specimens will be used.