

## **AGRICULTURE SCIENCES**

**Courses meet the life, physical or additional science requirement as noted**

### **7130 Introduction to Agri-science**

Length of Course: Year

Satisfies: Agriculture Earth Science

Suggested grade level 9 th and 10 th grade

This course typically will include content related to Earth Science in Agriculture and components of Agriculture Biology. Students will evaluate the role of agriculture in the California economy and understand the history of agriculture in California. Students will research and learn the economic impact of agriculture in California including the importance of our natural resources. Students will understand and explore their food safety and producer's responsibilities to consumers and understand the export and import industry of California. Students will begin to explore the effect of technology on agriculture and understand the labor availability, diversity, and efficiency for the industry. Students will also be taught the impact of the importance of soil components and fertilizers for production and the multitude of career opportunities for people in agriculture. Livestock production and terminology will be introduced as well. Students will get an opportunity to know related fields (i.e. welding) and the importance of agriculture mechanics for agriculture families. Students will be encouraged to have a project and record book and to participate in FFA activities. Grades will be partially based on FFA participation and projects.

### **7133 Introduction to Sustainable Agri-science 1 (CTE Introductory Course) (UC Area D)**

Length of Course: Year

Satisfies Agriculture Life Science/Biology

Suggested grade level 10 th grade (9-12 eligible)

Pre-requisite: Students should have completed Intro to Agri-science or teacher approval

This course reviews the history and importance of agriculture in California and how it affects the quality of life including the economic impact of agriculture on the nation. Students will examine the relationship between agriculture and the environment and the current challenges. Students will compare and contrast the practices for conserving the renewable and nonrenewable natural resources and how energy sources are derived from agricultural products. The importance and role of animals in our society will be discussed and research including the alternative uses of animals. Students will learn the anatomy and system of a variety of animals and be able to compare and contrast the function of plant and animal cells, bacteria and viruses. Students will be encouraged to have a project and record book and to participate in FFA activities. Grades will be partially based on FFA participation and projects.

### **7134 Intermediate Sustainable Agri-science 2 (CTE Concentrator Course) (UC Area D)**

Length of Course: Year

Prerequisite: Successful completion of Intermediate Agri-science 1 or teacher approval

Suggested grade level 11 th (10-12 eligible)

Satisfies Agriculture Physical Science – Soil Chemistry

This course explores the physical and chemical nature of soil as well as the relationships between soil, plants, animals and agricultural practices. Students examine properties of soil and land and their connections to plant and animal production. Additionally, students may develop and present a capstone soil management plan for agricultural producers, demonstrating their knowledge of the soil chemistry content learned throughout the course. Students will learn and design experiments using the scientific method. They will analyze an agricultural problem and devise a solution based on the scientific method. Students will analyze the effects of technology on agriculture and the logistics of moving an agricultural product from producer to consumer. Students will be able to communicate public concern for technological advancements in agriculture, such as genetically modified organism. Student will be able to understand fundamental animal nutrition and feeding including supplements for the various species. Students will evaluate sample feeding programs for various species including space requirements and economic considerations. Students will be able to evaluate basic animal health considerations and how housing, sanitation and nutrition influence animal health and behavior. Students will understand parasites and the causes and controls of common animal diseases. Students will develop an understanding of the soil principles and assess water delivery and irrigation. Students will be able to analyze plant growth and development and understand photosynthesis and the respiration process for plants. Students will gain an understanding of fundamental pest control and compare the methods of management. Students will be encouraged to have a project and record book and to participate in FFA activities. Grades will be partially based on FFA participation and projects.

### **7135 Advanced Sustainable Agri-science - Issues and Research in Agriculture (CTE Completer Course)**

Length of Course: Year

Prerequisite: Successful completion of Agri-science 2 or teacher approval

Life Science & Laboratory Science CSU/UC “D”

This is considered a UC Honors course. Currently not awarded a Durham weighted grade. This is the third course in a series of three, Sustainable Agri-science 1, Sustainable Agri-science 2, and Advanced Sustainable Agri-science. This integrated class combines an interdisciplinary approach to laboratory science and research with agricultural management principles. Using skills and principles learned in the course, including the chemical and biological principles that govern plant science and crop production, students design systems and experiments to solve agricultural management issues currently facing the industry. Additionally, students connect the products created in this class with industry activities to link real world encounters and implement skills demanded by both colleges and careers. The course culminates with an agri-science experimental research project in which students design and conduct an experiment to solve a relevant agricultural issue. Final projects will be eligible for Career Development Event competition at FFA events. Throughout the course, students will be graded on participation in intra-curricular FFA activities as well as the development and maintenance of an ongoing Supervised Agricultural Experience (SAE) program. Students will be encouraged to have a project and record book and to participate in FFA activities. Grades will be partially based on FFA participation and projects.