Biological Science Applications in Agriculture

1 Credit

2 Semesters

Prerequisites: None

Course Description:

CAN you imagine living in the United States at the time thefirst Europeans settled? No electricity. No grocery stores. Everything was done by hand or with draft animals. Use of machines was very limited. What if no scientific discoveries had been made in agriculture since that time?

Our world as we know it would be completely different. Certainly agricultural yields would be dramatically smaller, and with much smaller yields the population would be a fraction of what it is today. Without the benefit of machinery, farming would be more labor intensive and farms would be much smaller. Harvested food could be dried or salted to preserve it, but refrigeration would be out of the question. Transportation of food over long distances would be painfully slow by today's standards. The variety of foods we have would be limited without the discoveries in food processing. No bagged chips. No canned soda pop. No frozen pizzas.

Our surroundings would also be very different. Vast tracts of land would be forests, prairies, and wetlands. There would be habitat to support much more wildlife. Water and air would be cleaner. The world would be quieter.

It can be fun to imagine how our world might be different, but the reality is that the application of science has changed the world in which we live. And because of scientific discoveries, we live in greater comfort.

Course Content:

Unit 1:

Science: The Basis of Life

Ag Careers in Plant, Animal and Food Science

a) Workplace Skills and Expectations
b) Student Preparation for Work
c) The Importance of Agricultural Research
d) The Scientific Method
e) Measurements in Scientific Research
f) Research Reports: Major Parts
g) Research Report: Important Guidelines
h) Research Report: Accompanying Display
i) Safety in the Research Laboratory
j) Laboratory Tools and Equipment

Unit 2

a) The Importance of Agricultural Research
b) The Scientific Method
c) Measurements in Scientific Research

Unit 3

a) Research Reports: Major Parts
b) Research Report: Important Guidelines
c) Research Report: Accompanying Display

Unit 4

a) Safety in the Research Laboratory

b) Laboratory Tools and Equipment

Unit 5

a) Plant Cell Structures
b) DNA, RNA, and Protein Synthesis
c) Cell Division
d) Hereditiy
e) Agricultural Applications of Inheritance

Course Format:

This course is a hands-on, applied learning course. Learning will be reinforced through computer lessons, notes, worksheets, and labs. Homework will generally consist of reading and completing supplementary worksheets or material. The purpose of homework is to introduce or reinforce the material. Some lab activities may be considered homework.

Class time may be given to work on assignments. Use this time wisely! If an assignment is difficult please ask for help at any time. We will discuss the units in class through notes.

Assignments will be reviewed, discussed, and/or collected on the given due date. All homework will be collected at the beginning of the hour unless told otherwise. Any assignment not turned in at the appropriate time will be deemed late. (See late assignments for details.) Assignments will be returned as soon as possible. All notes, labs, and reviews should be kept in a folder (preferably a 3-ring binder) to study for tests and semester exams.

Grades:

Quizzes - Short, announced and unannounced quizzes will be given at various times.
These will serve a purpose to check for understanding of the information.

Tests - Will be announced in advance and we will discuss the format of the test, and what areas of information are on the test.

Final Exam- The final exam will be comprehensive and account for 20% of semester grade.