**AGRICULTURE DEPARTMENT**

## 5056 Introduction to Agriculture, Food, and Natural Resources

Introduction to Agriculture, Food, and Natural Resourcesis a year-long course that is highly recommended as a prerequisite and foundation for all other agricultural classes. The nature of this course is to provide students with an introduction to careers and the fundamentals of agricultural science and business. Areas to be covered include: agricultural literacy, its importance and career opportunities, plant and soil science, environmental science, horticulture and landscape management, agricultural biotechnology, agricultural science and business tools and equipment, basic principles of and employability in the agricultural/horticultural industry, basic agribusiness principles and skills, developing leadership skills in agriculture, and supervised experience in agriculture/horticulture purposes and procedures. Student learning objectives are defined. Instruction includes not only agriculture education standards but many academic standards are included through the use of “hands-on” problem-solving individual and team activities.

•Suggested Grade Level: 9

•Is offered as a one or two semester course.

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

**5074 ADVANCED LIFE SCIENCE: Soils (Greenhouse)**

Advanced Life Science: Plants and Soils provides students with opportunities to participate in a variety of activities which includes laboratory work. Students study concepts, principles and theories associated with plants and soils. Students recognize how plants are classified, grown, function and reproduce. Students explore plant genetics and the use of plants by humans. They examine plant evolution and the role of plants in ecology. Students investigate, through laboratory and fieldwork, how plants functions and the influence of soil in plant life. Students will manage a working greenhouse and will use marketing, developing, and management skills to operate the structure.

•Recommended Grade Level: Grade 11-12

•Recommended Prerequisites: Introduction to Agriculture, Chemistry and Biology

•Credits: 1 credit per semester, maximum of 2 credits

•Fulfills a Core 40 Science requirement for all diploma options

**5620 Diesel Tech: Engines**

Diesel Tech: Small and Large Enginesis a two semester, lab intensive course in which students develop an understanding of basic principles of selection, operation, maintenance, and management of agricultural equipment in concert with the utilization of technology. Topics covered include: safety, engines, emerging technologies, leadership development, supervised agricultural experience, and career opportunities in the area of agriculture power, structure, and technology.

•Recommended Grade Level: Grade 10-12

•Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources

•Credits: 1 credit per semester, maximum of 2 semesters

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

## 5580 Construction Technology I & II

Construction Technology I includes classroom and laboratory experiences concerned with the formation, installation, maintenance, and repair of buildings, homes, and other structures. A history of building construction to present-day applications emphasizing future trends and construction as a career. Provides instruction and practice in the use of working drawings and applications from the print to the work. Includes relationship of views and details, interpretation of dimension, transposing scale, tolerance, electrical symbols, sections, materials list, architectural plans, geometric construction, three dimensional drawing techniques, and sketching will be presented as well as elementary aspects of residential design and site work. Areas of emphasis will include print reading and drawing, room schedules and plot plans. Examines the design and construction of floor and wall systems and student develops the skill needed for layout and construction of floor and wall systems from blueprints and professional planning documents. Instruction will be given in the following areas, administrative requirements, definitions, building planning, foundations, wall coverings, roof and ceiling construction, and roof assemblies. Students will develop an understanding and interpretation of the Indiana Residential Code for one and two-family dwellings and safety practices including Occupational Safety and Health Administration’s Safety & Health Standards for the construction industry. This course requires off-campus participation. The class will follow Frankfort High School’s school calendar.

• Recommended Grade Level: Grade 11-12

• Credits: 2-3 credits per semesters, maximum of 2 semesters, maximum of 6 credits

• Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

 •The student will be responsible for transportation to and from classes and all work programs.

•Students with more than five (5) absences per semester (excused and/or unexcused) for the current school year will not be considered for enrollment in this vocational class. Attendance in these programs is a critical element for success.

 •Approval from the high school principal and course instructor is required.

## 5088 Woodworking

Woodworking activities include classroom and laboratory experiences concerned with manipulating and constructing with wood. Emphasis will be placed on safety standards, design principals, and knowledge of equipment used when working with wood.

•Recommended Grade Level: Grade 10-12

•Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources

•Credits: 1 credit

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

## 5776 Welding Tech I

Welding Technology I includes classroom and laboratory experiences that develop a variety of skills in oxy-fuel cutting and Shielded Metal Arc welding. This course is designed for individuals who intend to make a career as a Welder, Technician, Sales, Designer, Researcher or Engineer. Emphasis is placed on safety at all times. OSHA standards and guide lines endorsed by the American Welding Society (AWS) are used. Instructional activities emphasize properties of metals, safety issues, blueprint reading, electrical principles, welding symbols, and mechanical drawing through projects and exercises that teach students how to weld and be prepared for college and career success.

•Recommended Grade Level: Grade 10-12

•Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources

•Credits: 1 credit

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

## 5776 Welding Tech II

Welding Technology II builds on the Gas Metal Arc welding, Flux Cored Arc Welding, Gas Tungsten Arc welding, Plasma Cutting and Carbon Arc skills covered in Welding Technology I. Emphasis is placed on safety at all times. OSHA standards and guide lines endorsed by the American Welding Society (AWS) are used. Instructional activities emphasize properties of metals, safety issues, blueprint reading, electrical principles, welding symbols, and mechanical drawing through projects and exercises that teach students how to weld and be prepared for college and career success.

•Recommended Grade Level: Grade 10-12

•Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources

•Credits: 1 credit

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

**5132 Horticulture Science (Ivy Tech Dual Credit)**

Horticultural Scienceis a yearlong course designed to give students a background in the field of horticulture and its many career opportunities. It addresses the biology and technology involved in the production, processing, and marketing of horticultural plants and products. Topics covered include: reproduction and propagation of plants, plant growth, growth media, hydroponics, floriculture and floral design, management practices for field and greenhouse production, interior plantscapes, marketing concepts, production of herbaceous, woody, and nursery stock, fruit, nut, and vegetable production, integrated pest management and employability skills. Students participate in a variety of activities including extensive laboratory work usually in a school greenhouse.

•Suggested Grade Levels: 10, 11, 12

•Recommended Prerequisite: Fundamentals of Agricultural Science and Business or by permission of the teacher.

•A two-credit/two-semester course.

•Fulfills a Life Science requirement for the General Diploma only or counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas.

•Qualified students can receive dual credit with Ivy Tech Community College.

#### 5002 Agribusiness Management (Ivy Tech Dual Credit)

Students will learn basic economic principals and then apply them to an agribusiness and farm situation. How agriculture uses risk management, storage, personnel management, inventory, marketing, and public relations. Economic tools such as balance sheets and record keeping statements will be used. Students will set up an imaginary business and explore how that business operates.

•Suggested Grade Levels: 11, 12

• A two-credit/two-semester course.

• Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

## 5180 Natural Resources (Ivy Tech Dual Credit)

This course is a yearlong program that provides students with a background in natural resource management. Students are introduced to career opportunities in natural resource management and related industries, understanding forest ecology importance, recognizing trees and their products, tree growth and development, forest management, measuring trees, timber stand improvement and urban forestry, soil features, erosion and management practices, conservation practices, water cycles, uses, quality standards, reducing water pollution, conducting water quality tests, watersheds, and its importance to natural resource management, hazardous waste management, native wildlife, waterfowl, wetlands, and fish management, topography map use, management of recreational areas, game bird and animal management, outdoor safety, and weather. “Hands-on” learning activities encourage students to investigate areas of environmental concern including: identification and management of ecosystems, natural succession identification, natural communities, recycling and management of waste in the environment, soil conservation management practices, land uses, and air quality.

• This course is offered for 1 period of the school day every other year rotating with Horticulture Science (2 periods of the day). The rotation of this class is subject to change due to course enrollment.

• Suggested Grade Levels: 10, 11, 12

• Recommended Prerequisite: None

• A two-credit/two-semester course.

• Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

**5088 Ag Technology: Electric**

Ag Technology: Electric includes classroom and laboratory experiences focused on the installation and repair of the electrical and wiring systems of physical structures. This course includes instruction on the reading of technical drawings and their application in construction processes. Topics include the relationship between views and details, interpretation of dimension, transposing scale, tolerance, electrical symbols, sections, material lists, architectural plans, room schedules and plot plans. This course covers both AC and DC circuits. Studies include electron theory, Ohm’s Law, Watt’s Law, Kirchoff’s Law, series circuits, series-parallel circuits, electromagnetic induction, current, voltage, resistance, power, inductance, capacitance, and transformers. Students will demonstrate the use of electrical equipment, troubleshooting techniques, the installation of hardware, metering equipment, lights, switches, and safety procedures and practices. Students will use the underlying scientific principles related to electricity, electronics, circuits, sine waves, and Ohm’s Law. Mathematical principles will be used to solve electrical problems.

 • Recommended Grade Level: Grade 11-12

 • Recommended Prerequisites: Introduction to Construction

 • Credits: 2-3 credits per semesters, maximum of 6 credits

 • Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

**5229 Ag Technology: Alt Fuels**

Alternative Fuels broadens a student’s understanding of environmentally friendly energies. In this course students will use a combination of classroom, laboratory, and field experiences to analyze, critique, and design alternative energy systems. Class content and activities center on renewability and sustainability for our planet. Topics covered in this course include the following types of alternative energies: solar, wind, geothermal, biomass and emerging technologies. Leadership development, supervised agricultural experience and career exploration opportunities in the field sustainable energy are also included.

•Recommended Grade Level: Grade 10-12

•Recommended Prerequisites: Introduction to Agriculture, Food, and Natural Resources

•Credits: 2 credit per semester, maximum of 2 semesters

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

**5228 SAE (Supervised Agricultural Experience)**

Supervised Agricultural Experience (SAE)is designed to provide students with opportunities to gain experience in the agriculture field(s) in which they are interested. Students should experience and apply what is learned in the classroom, laboratory, and training site to real-life situations. Students work closely with their agricultural science teacher(s), parents, and/or employers to get the most out of their SAE program. This course can be offered each year as well as during the summer session. Curriculum content and competencies should be varied so that school year and summer session experiences are not duplicated.

•Suggested Grade Levels: 10, 11, 12

•Recommended Prerequisite: Fundamentals of Agricultural Science and Business

•Credits: A maximum of eight credits may be earned in this course when offered as a ―non-co-op, one hour course over eight semesters, some of which can be earned during summer sessions. Curriculum content and competencies should not be duplicated when multiple credits are being earned.

•Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas