**130.15. Wildlife, Fisheries, and Ecology Management (One-Half to One Credit).**

(a)  General requirements. This course is recommended for students in Grades 9-12.

(b)  Introduction. To be prepared for careers in natural resource systems, students need to attain academic skills and knowledge, acquire technical knowledge and skills related to natural resources, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. This course examines the management of game and non-game wildlife species, fish, and aquacrops and their ecological needs as related to current agricultural practices.

(c)  Knowledge and skills.

(1)  The student learns the employability characteristics of a successful employee. The student is expected to:

(A)  identify career development and entrepreneurship opportunities in the field of natural resources;

(B)  apply competencies related to resources, information, interpersonal skills, and systems of operation in natural resources;

(C)  demonstrate knowledge of personal and occupational health and safety practices in the workplace; and

(D)  identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills.

(2)  The student analyzes the importance of wildlife, with an emphasis on use and management. The student is expected to:

(A)  analyze the importance of wildlife, fisheries, and ecology management;

(B)  discuss the history of wildlife, fisheries, and ecology management;

(C)  discuss policies, laws, and the administration of wildlife, fisheries, and ecology management; and

(D)  describe how public recreation use is a product.

(3)  The student knows the scientific basis for wildlife management. The student is expected to:

(A)  identify the basic ecological concepts of game management;

(B)  identify game, non-game, and fish species;

(C)  describe the management of wildlife populations;

(D)  identify observable diseases impacting plants and animals; and

(E)  describe how to report observance of disease infestations.

(4)  The student knows the interrelationships between the various aspects of wildlife and outdoor public use management. The student is expected to:

(A)  identify special areas of importance in wildlife and public use management;

(B)  identify laws and regulations regarding the use of wildlife resources;

(C)  discuss laws and regulations regarding recreation safety;

(D)  list factors involved in landowner and property rights;

(E)  demonstrate specific safety certification requirements;

(F)  demonstrate precautions to use when interfacing with the public concerning regulations and law enforcement;

(G)  describe security issues for closed and restricted areas;

(H)  describe solutions to issues concerning public protection;

(I)  recognize potential threat situations for the public and other users;

(J)  identify the appropriate law enforcement authority;

(K)  describe wildlife harvest techniques and procedures; and

(L)  describe fish harvest techniques and procedures.

(5)  The student examines natural cycles and related phenomena to describe ecologic concepts and principles. The student is expected to:

(A)  explain the hydrologic, nitrogen, carbon, and nutrient cycles;

(B)  describe succession;

(C)  describe population dynamics;

(D)  distinguish between primary and secondary producers;

(E)  describe predator-prey relationships;

(F)  identify potential pollution sources;

(G)  define watershed boundaries;

(H)  use the stream classification system; and

(I)  describe the influence of weather and climatic factors.

(6)  The student applies cartographic skills to natural resource activities. The student is expected to:

(A)  describe different types of maps;

(B)  interpret map features and legends;

(C)  determine map scale and actual distance;

(D)  determine direction from map;

(E)  determine elevation and terrain features from topographic maps;

(F)  use directional tools with maps to locate position;

(G)  use land survey and coordinate system; and

(H)  use a Geographic Information System to interface geospatial data and interpret photos and images.

(7)  The student obtains planning data by monitoring natural resource status. The student is expected to:

(A)  describe resource inventory and population studies;

(B)  devise sample plots and points;

(C)  identify and locate resources;

(D)  interpret data concerning resource availability and health;

(E)  organize databases of resource data;

(F)  use a Geographic Information System to analyze resource data;

(G)  create a technical report; and

(H)  describe the relationship of harvest levels to long-term availability of resources.

(8)  The student executes various natural resource enhancement techniques using scientific knowledge from the study of environment and wildlife. The student is expected to:

(A)  demonstrate stream enhancement techniques;

(B)  demonstrate wildlife habitat enhancement techniques; and

(C)  demonstrate public use and recreation area enhancement techniques.

(9)  The student demonstrates the concepts related to the importance of facilities, harvest, processing, and marketing of aquaculture products. The student is expected to:

(A)  discuss the importance and progress of aquaculture as an emerging industry; and

(B)  identify and classify plant and animal aquaculture species.

(10)  The student demonstrates concepts related to optimum production. The student is expected to:

(A)  describe nutritional aspects of aquaculture production;

(B)  discuss requirements for optimum growth of species-specific aquacrops;

(C)  plan and administer treatments for diseases, parasites, predators, and pests of species-specific aquacrops;

(D)  recognize weather-related dangers;

(E)  recognize hazards as they relate to terrain;

(F)  identify poisonous plants and animals;

(G)  recognize hazardous situations; and

(H)  demonstrate personal fire prevention precautions while working in natural environments.

(11)  The student develops an improved supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:

(A)  plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity;

(B)  apply proper record-keeping skills as they relate to a supervised experience;

(C)  design and use a customized record-keeping system for the individual supervised experience;

(D)  participate in youth leadership opportunities to create a well-rounded experience program in agriculture; and

(E)  produce a challenging approach for a local program of activities in agriculture.