

### **4.03 Agriculture, Food and Natural Resources (Grades 7-12)**

To be endorsed in agriculture, food and renewable natural resources, an applicant shall hold an earned bachelor's or higher degree from an accepted institution of higher education; have completed an approved teacher preparation program including prescribed field experience and student teaching requirements; have completed an approved program in agriculture, food and renewable natural resources; and have demonstrated the competencies listed below:

4.03(1) The agriculture, food and renewable natural resources educator shall have extensive preparation in agriculture, food and renewable natural resources and demonstrate knowledge in related content including, but not limited to, animal sciences; power, structural and technical systems; plant sciences; agribusiness systems; environmental science and natural resource systems; and food products and processing.

4.03(1)(a) The agriculture, food and renewable natural resources educator shall be knowledgeable and able to effectively instruct students about one or more of the following content areas:

4.03(1)(a)(i) animal sciences to include, but not be limited to: trends in the animal industry, best practices for animal welfare, nutrition, reproduction, environmental management and performance;

4.03(1)(a)(ii) agricultural power, structural and technical systems to include, but not be limited to: physical science applications in agriculture PST systems; equipment operation, repair and maintenance; planning, building and maintaining agriculture structures; agricultural metal fabrication; and operation and utilization of geospatial technologies in agriculture;

4.03(1)(a)(iii) plant systems to include, but not be limited to: crop management planning; plant anatomy, classification and philosophy; propagation, culture and harvest of plant products; and principles of design in plant systems for environmental enhancement;

4.03(1)(a)(iv) agricultural business systems to include, but not be limited to: business management principles; financial and production data collection and recording; credit and cash management; business planning; and sales and marketing;

4.03(1)(a)(v) environmental science and natural resources to include, but not be limited to: natural resources use planning; interrelationships between natural resources and humans; sustainable production and use of natural resources; environmental analytical procedures; tools and equipment; environmental policies and regulations; and environmental service systems; and

4.03(1)(a)(vi) food products and processing to include, but not be limited to: food safety, sanitation and practices; food nutrition; biology, microbiology and chemistry; food processes, storage, distribution and consumption; and food industry scope and development.

4.03(1)(b) The agriculture, food and renewable natural resources educator is knowledgeable about and able to:

4.03(1)(b)(i) ensure that students' work reflects industry standards and that students remain aware of current issues in the field;

- 4.03(1)(b)(ii) maintain an active advisory committee(s) composed of local business/industry representatives to assure that implementation of the curriculum accurately reflects current industry conditions and standards, and to serve as a resource for the placement of students;
  - 4.03(1)(b)(iii) acquire and allocate supplementary fiscal and human resources, as needed, from and within the school, community and industry;
  - 4.03(1)(b)(iv) provide experiences in simulated or real workplace environments that can provide students with appropriate and applicable firsthand experience to enable them to make career decisions based on a knowledgeable perspective;
  - 4.03(1)(b)(v) provide students with a wide variety of opportunities to gain experience with and be able to exercise initiative in applying the skills and abilities of organizational management and leadership, public speaking and parliamentary procedure, and to earn awards and recognition through participation in student vocational and community service organizations;
  - 4.03(1)(b)(vi) provide students with the ability to evaluate, select, adapt and apply technology as needed;
  - 4.03(1)(b)(vii) incorporate and reinforce practical applications of core content knowledge, skills and abilities in simulated or real-world situations and by coordinating instruction with other educational staff;
  - 4.03(1)(b)(viii) present and discuss controversial issues related to agriculture and renewable resources in the instructional setting with clarity and without bias; and
  - 4.03(1)(b)(ix) maintain a safe, well-equipped and well-maintained learning environment and instruct students in the safe and appropriate use, care and maintenance of tools, equipment and applicable substances and materials.
- 4.03(2) The agriculture, food and renewable resources educator shall self-assess the effectiveness of instruction based on the achievement of students and pursue continuous professional development through appropriate activities, coursework and participation in relevant professional organizations.