

National Institute of Food and Agriculture

Science Emphasis Areas and Knowledge Areas Crosswalk

Agroclimate Science, Science Emphasis Area

Description: Supports transformational discovery, learning and outreach programs that advance the development and delivery of agricultural science and optimizes sustainable management, production, utilization and consumption of goods and services from working lands under a variable and changing climate.

- KA 132 – Weather and Climate

Bioeconomy, Bioenergy, Bioproducts Science Emphasis Area

Description: Supports advances in crop development, coordinated logistics, near-term commercialization in conversion technologies and products, modeling the improvement of maintaining environmental services, and evaluating social prosperity for rural communities.

- KA 511 – New and Improved Non-Food Products and Processes
- KA 512 – Quality Maintenance in Storing and Marketing Non-Food

Education & Multicultural Alliances Science Emphasis Area

Description: Provides leadership and administrative guidance to education grant and formula programs that serve secondary and postsecondary institutions that invest in students and institutions which promote national and global well-being in the food and agriculture science systems.

- KA 903 – Communication, Education and Information Delivery

Environmental Systems Science Emphasis Area

Description: Supports scientific research, education and extension that involves air, water, soil, natural resources, and biodiversity in order to advance the sustainability of agricultural, forest, and range production systems.

- KA 101 – Appraisal of Soil Resource
- KA 102 – Soil, Plant, Water, Nutrient Relationships
- KA 103 – Management of Saline and Sodic Soils and Salinity
- KA 104 – Protect Soil from Harmful Effects of Natural Elements
- KA 111 – Conservation and Efficient Use of Water

- KA 112 – Watershed Protection and Management
- KA 121 – Management of Range Resources
- KA 122 – Management and Control of Forest and Range Fires
- KA 123 – Management and Sustainability of Forest Resources
- KA 124 – Urban Forestry
- KA 125 – Agroforestry
- KA 131 – Alternative Uses of Land
- KA 133 – Pollution Prevention and Mitigation
- KA 134 – Outdoor Recreation
- KA 135 – Aquatic and Terrestrial Wildlife
- KA 136 – Conservation of Biological Diversity
- KA 141 – Air Resource Protection and Management
- KA 403 – Waste Disposal, Recycling and Reuse
- KA 405 – Drainage and Irrigation Systems and Facilities
- KA 605 – Natural Resource and Environmental Economics

Family & Consumer Sciences Science Emphasis Area

Description: Supports the human and social dimensions of food and agricultural sciences.

- KA 601 – Economics of Agricultural Production and Farm Mang.
- KA 607 – Consumer Economics
- KA 608 – Community Resource Planning and Development
- KA 723 – Hazards to Human Health and Safety
- KA 724 – Healthy Lifestyles
- KA 801 – Individual and Family Resource Management
- KA 802 – Human Development and Family Well-Being
- KA 803 – Sociological and Technological Change Affecting...
- KA 804 – Human Environmental Issues Concerning Apparel,...
- KA 805 – Community Institutions, Health and Social Sciences
- KA 807 – Disaster Preparedness, Mitigation, Response, and Recovery

Food Safety Science Emphasis Area

Description: Ensures a safe and high quality food supply through funding of research, education, and extension activities and efforts by partners and stakeholders; sets national priorities; and provides guidance, management and oversight of these activities.

- KA 501 – New and Improved Food Processing Technologies
- KA 502 – New and Improved Food Products
- KA 503 – Quality Maintenance in Storing and Marketing Food ...

- KA 504 – Home and Commercial Food Service
- KA 711 – Ensure Food Products Free of Harmful Chemicals,...
- KA 712 – Protect Food from Contamination by Pathogenic ...

Human Nutrition Science Emphasis Area

Description: Develops the research base for guidance on diet and physical activity and develops and implements effective educational and environmental strategies to improve the Nation's health by providing leadership for strong research, education and extension.

- KA 701 – Nutrient Composition of Food
- KA 702 – Requirements and Function of Nutrients and Other Food
- KA 703 – Nutrition Education and Behavior
- KA 704 – Nutrition and Hunger in the Population

Sustainable Agricultural Production Systems Science Emphasis Area

Description: Addresses human interaction between science, technology, and agriculture. Integrates the biological, physical, and environmental and socioeconomic factors essential to successful production enterprises and viable rural communities.

- KA 201 – Plant Genome, Genetics, and Genetic Mechanisms
- KA 202 – Plant Genetic Resources
- KA 203 – Plant Biological Efficiency and Abiotic Stresses Affecting...
- KA 204 – Plant Product Quality and Utility (Preharvest)
- KA 205 – Plant Management Systems
- KA 206 – Basic Plant Biology
- KA 211 – Insects, Mites and Other Anthropods Affecting Plants
- KA 212 – Pathogens and Nematodes Affecting Plant
- KA 213 – Weeds Affecting Plants
- KA 214 – Vertebrates, Mollusks, and Other Pests Affecting Plants
- KA 215 – Biological Control of Pests Affecting Plants
- KA 216 – Integrated Pest Management Systems
- KA 301 – Reproductive Performance of Animals
- KA 302 – Nutrient Utilization in Animals
- KA 303 – Genetic Improvement of Animals
- KA 304 – Animal Genome
- KA 305 – Animal Physiological Processes
- KA 306 – Environmental Stress in Animals
- KA 307 – Animal Management Systems
- KA 308 – Improved Animal Products (Before Harvest)

- KA 311 – Animal Diseases
- KA 312 – External Parasites and Pests of Animals
- KA 313 – Internal Parasites in Animals
- KA 314 – Toxic Chemicals, Poisonous Plants, Naturally Occurring...
- KA 315 – Animal Welfare/Well-Being and Protection
- KA 401 – Structures, Facilities and General Purpose Farm Supplies
- KA 402 – Engineering Systems and Equipment
- KA 404 – Instrumentation and Control Systems
- KA 602 – Business Management, Finance, and Taxation
- KA 603 – Market Economics
- KA 604 – Marketing and Distribution Practices
- KA 609 – Economic Theory and Methods
- KA 610 – Domestic Policy Analysis
- KA 721 – Insects and Other Pests Affecting Humans
- KA 722 – Zoonotic Diseases and Parasites Affecting Humans

Youth Development Science Emphasis Area

Description: Advances research-based youth development and 4-H through the science of engagement, learning and change to create a better future for our nation and the world.

- KA 806 – Youth Development