

Course Description

Course Code of the Curriculum Course

01013111 Introduction to Tropical Agriculture 3(3-0-9)

Importance of tropical agriculture, tropical ecosystem, production resources, production system, marketing, logistics, utilization, value creation, quality and safety of produce and products, economics and tropical agriculture business, international trade of agricultural commodities.

01013221 Tropical Entomology 3(2-3-11)

Tropical ecosystem and tropical insect diversity, roles of environment and global warming on insect community, important insect pest of tropical agricultural and their management. Insect problems in international trades of agricultural commodities.

01013231 Principles of Tropical Agronomy 3(3-0-9)

Agro-meteorology and climate change in the tropics, genetic resources and crop improvement, biotechnology and tropical crop production, crop physiology, crop system and pattern, tropical crop production and management, seed production, new technology and research of tropical agronomy.

01013232 Introduction to Tropical Horticulture 3(2-3-11)

Importance and classification of Tropical Horticulture. Basic factors related to plant growth and development. Vegetable, ornamental plant, fruit crop, medicinal plant and spice production system. Landscaping and horticulture for daily life. Field trip required.

01013299 General Practicum 2

General farm practices in agronomy, horticulture, pest management, soil and fertilizer, economic animal husbandry and farm machinery.

01013331 Tropical Field Crop Production for Food, Feed and Fuel 3(3-0-9)

Demand, consumption, significance and characteristics of tropical field crop for food, feed and fuel. Production and utilization of tropical food, feed and fuel crops. Tropical field crop for food, feed and fuel, i.e. rice, corn, soybean, cassava, sugarcane, oil palm, forage and biomass plants, tropical pulse crops, physic nut and others.

01013341 Tropical Soil Resources 3(3-0-9)

Tropical environments, importance, potential and constraints of tropical soil resources, characteristics, distributions and properties of tropical soils, soil organic matter and fertility management, tropical agricultural biodiversity and limitation, land use and impact on global

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- 01013395* Study Abroad** **1-6**
Learning and self-development from courses taken in oversea university. Credit equivalence according to Kasetsart University regulation.
- 01013396** Body of Knowledge from Overseas Studies** **1-15**
Knowledge in Agriculture, Economics or Business administration at the bachelor's degree level taken in overseas universities. Credit equivalence according to Kasetsart University regulation.
- 01013399 Specific Practicum** **3**
Prerequisite: 01013299
Specific practicum in tropical agriculture. Field trips required.
- 01013490 Cooperative Education** **6**
On the job training as a temporary employee according to the assigned project including report writing and presentation.
- 01013496 Selected Topic in Tropical Agriculture** **1-3**
Interesting topics in Tropical Agriculture at the bachelor degree level. Topics are subject to change in each semester. Field trips required.
- 01013497 Seminar** **1**
Presentation and discussion on current interesting topics in tropical agriculture at the bachelor's degree level.
- 01013498 Special Problems** **1-3**
Study and research in tropical agriculture at bachelor's degree level and compiled into a written report.
- 01013499 Special Training** **3**
Special training in tropical agriculture.

*New subject

**Improved subject

Course Description

Courses Code of the Extracurricular Course

01001241 Perspective in Agricultural Extension (3-0-6)

Importance of agricultural sector, perspective in agricultural extension, information sources and accessibility, knowledge management, Diffusion and innovation, Value adding of agricultural product and service, Strategy and technique for building participation. Change management, sufficiency economy, sustainable development and success indicator.

01001342 Innovative Agricultural Community (3-0-6)

Importance and concept of Nawatwithi community, foundation of economic development, creating and developing personnel, entrepreneurs, Nawatwithi agricultural community analysis, communities, and the process of driving the Nawatwithi community project, Nawatwithi community classification, community products, community marketing promotion for agrotourism.

01001345 Agricultural Comparison Extension 3(3-0-6)

Agricultural extension, agricultural extension system, tools used in agricultural extension, production potential, agricultural extension of Thailand and other countries, neighboring countries group, developing countries group and developed countries group, current direction of agricultural extension, analysis, and comparison on agricultural extension.

01001346 Community Economy for Agricultural Extension (3-0-6)

Economic system, community capital, activities at agriculture community economy, government policy, group and organization, community enterprise, community business, community economy development.

01002111 Animal Science and Technology 3(3-0-6)

Importance of animal production, relationship to other agricultural production sectors, science and technology in animal production, farm management and the environment, primary products and animal products, livestock marketing, future trend of animal production.

01002302 Animal Resources and Management 3(3-0-6)

Animal resources and management, waste minimization technologies, handling and treatment of animal farm wastes and value-adding and recycling of animal wastes.

01002371 Introduction to Animal Science and Biotech 3(3-0-6)

Basic knowledge of animal science in physiology, hygiene, nutrition, and breeding, molecular biology, animal biotechnology, biostatistics, and bioethics.

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01003421 Agroclimatology **3(3-0-6)**

Nature of the atmosphere, climate classification, agroclimatological services, use of climatological information for agriculture, global climate change and the agricultural impacts, agroclimate and sustainable intensification of agriculture.

01004211 Insect Science **3(2-2-5)**

Prerequisite: 01424111

Insect biology, morphology, life cycle and development, physiology, ecology, evolution and diversity, insect classification collection, preservation and identification. Principles of insect control.

01005221 Tropical Agricultural Machinery **3(2-3-6)**

Principles of farm machinery for tropical agriculture. Power and tractor. Field efficiency of tropical farm machinery. Factors affecting operation efficiency of tropical farm machinery. Automatic control of farm machinery. Management of tropical farm machinery. Mechanization for rural development.

01005334 Irrigation Systems and Water Management **3(3-0-6)**

Principle of irrigation water management. Water control and measurement. Irrigation methods and practices. Selection of irrigation system components.

01005449 Tropical Greenhouse Management **3(3-0-6)**

Model and structure of tropical greenhouse. Location of greenhouse. Cooling and air ventilation system. Water, light, temperature, carbon dioxide, insect and disease control in greenhouse.

01007451 Physiology of Horticultural Crops **3(2-2-5)**

Prerequisite: 01401114

Various physiological processes in horticultural crops. Environment and factors affecting horticulture crop production.

01008211 Introductory Plant Pathology **3(2-3-6)**

History and importance of plant diseases; plant disease concept; etiology, symptom, disease development, epidemiology, classification, diagnosis; principles of plant disease control and biotechnology in plant pathology.

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01009112 Soil Science **3(2-3-6)**

Importance of soil, soil genesis, soil compositions, physical, chemical and biological soil properties, soil organic matter and soil microorganisms, plant nutrients, fertilizers and its usage, soil survey and classification, soil and water conservation, applications of soil and environmental information.

01009472 Principles Soil and Water Conservation **3(3-0-6)**

Prerequisite: 01009112

Causes, mechanism and factors affecting soil erosion and degradation, evaluation and control of soil erosion, damage and environmental impacts, sources, geographical distribution and cycle of water resources, basic principle and concepts of soil and water conservation for sustainable productivity. Field trip required.

01111111 Principles of Microeconomics **3(3-0-6)**

Basic concepts of economics, demand supply, price elasticity of demand and supply, the role of the government and the application of demand and supply. Consumer behavior and utility. Production and cost in short-run and long-run. Output and price determination in different types of market, production factor markets and determination of return on production factors.

01111215 Agricultural and Resource Economics **3(3-0-6)**

Prerequisite: 01111111

Economics concepts related to agriculture, food industry, natural resources and environment in a national and global context. Emphasis on agricultural production and consumption. Role of government on agricultural and trade policy. Financial policy related to agriculture and farm management.

01111219 Fundamental of Entrepreneur Economics **3(3-0-6)**

Prerequisite: 01111111

Microeconomics Macroeconomics and business environment. Analysis of the economic role and important of the entrepreneur. The entrepreneur as market-maker and leader. The entrepreneurial role in strategic decision making, organizational design, supply chain management and management development. Financial planning and venture capital. Field trip is required.

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01130171 Financial Accounting **3(3-0-6)**

General accounting principles; principles of recording transactions for cash, account receivables, note receivables, inventories, investment, tangible and intangible assets, liabilities, owner equities; preparation of financial reports.

01132111 Principles of Management **3(3-0-6)**

Concepts and evolution of management. Managerial jobs. Business environment affecting business management. Business ethics and cooperate social responsibility. Managerial roles and management functions of managers. Business decision-making, planning, organizing, leading, and controlling.

01134111 Principles of Marketing **3(3-0-6)**

Nature and process of marketing, Concepts, role, functions and factors of marketing. Market segmentation. Selecting target market. Consumer behavior.

01299201 Aquatic Animal Science and Technology **2(2-0-4)**

Importance of fishery industry, structure of fishery industry, introduction to aquatic fauna and flora, fishing activities, aquaculture, fish processing, laws and regulations related to fishery industry.

01307421 Principles of Agroforestry and Management **3(3-0-6)**

Basic knowledge in agroforestry, component, and classification. Ecological aspects of agroforestry system, Knowledge of agroforestry management. Formulation of agroforestry development project. Planing and design. Implementation and evaluation. Field trip required.

01401114 General Botany **3(2-3-6)**

General principles of plant morphology, anatomy, physiology, ecology, classification and evolution. Uses of plants.

01403111 General Chemistry **4(4-0-8)**

Atoms and atomic structureds, periodic system, chemical bonds, chemical reactions, gas es, liquids, solids, solutions, thermodynamics, chemical kinetics, chemical equilibria, electrolytes and their ionization, acids and bases, ionic equilibria, electrochemistry.

01403112 Laboratory in General Chemistry **1(0-3-2)**

Prerequisite or enroll at the same time: 01403111

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01418223 Data Science and Application Programs **3(2-2-5)**

Concepts and processes of data science. Application programs for data science. Database basics. Data connection. Data cleaning and manipulation. Date and time processing. Data summarization. Basic statistics. Data modeling. Interactive data visualization.

01422111 Principles of Statistics **3(3-0-6)**

Concept of statistics, measures of location, probability, measure of center, measure of dispersion, random variables and their probability distributions, binomial distribution, Poisson distribution, normal distribution, sampling distribution, statistical inference for one and two populations, analysis of categorical data, one-way analysis of variance, simple linear regression analysis.

01424111 Principles of Biology **3(3-0-6)**

Biomolecules of organisms, cell and metabolism, genetics and evolution, species diversity, structure and function of animals and plants, ecology and behavior.

01424112 Laboratory in Biology **1(0-3-2)**

Prerequisite or enroll at the same time: 01424111

Laboratory for microscope, cell and comments, cell membrane and transport, enzyme and bioenergetics, plant tissue and animal tissue, cell cycle and cell division, reproduction and biodevelopment, species diversity and ecology.