Faculty of Agriculture

Master of Science Program in Sustainable Agriculture (International Program)

M.S. (Sustainable Agriculture)

Plan A Option 1:

Total credits required: minimum 36 credits

(1) Major courses: minimum 8 credits (audit)

- **Seminar: 2 credits**

01019597	Seminar	1,1

- **Major requirements: 6 credits**

01019561	Sustainable Agriculture	3(3-0-6)
01019591	Research Methods in Sustainable Agriculture	3(3-0-6)

(2) Thesis: minimum 36 credits

01019599	Thesis	1-36

Plan A Option 2:

Total credits required: minimum 36 credits

(1) Major courses: minimum 24 credits

- **Seminar: 2 credits**

01019597	Seminar	1,1

- **Major requirements: 9 credits**

01019553	Natural Resources for Sustainable Agriculture	3(3-0-6)
01019561	Sustainable Agriculture	3(3-0-6)
01019591	Research Methods in Sustainable Agriculture	3(3-0-6)

- **Major electives: minimum 13 credits**

Choose at least 7 credits from the list below.

01019511	Integrated Pest Management	3(3-0-6)
01019512	Agricultural Pest Ecology	3(3-0-6)
01019521	Pesticides and the Environment	3(3-0-6)
01019531	Sustainable Crop Production	3(3-0-6)
01019541	Sustainable Animal Production	3(3-0-6)
01019551	Soil Fertility and Organic Matter	3(3-0-6)
01019562	Technology Transfer for Sustainable Agriculture	
01019563	Sustainable Agriculture in Socio-economic Dimension	3(3-0-6)
01019596	Selected Topics in Sustainable Agriculture	1-3
01019598	Special Problems	1-3

In addition, students may choose at least 6 credits of 500 level courses from other related field. He/she must gain approval from advisory committee and the Dean of The Graduate School.

(2) Thesis: minimum 12 credits

01019599	Thesis	1-12

Course Description

01019511 Integrated Pest Management **3(3-0-6)**

Conceptual framework, process and philosophy of pest management. Principles of ecology and socio-economic backgrounds. Guidelines and implementation of pest management.

01019512 Agricultural Pest Ecology **3(3-0-6)**

Role of agricultural pest ecology in pest management strategies and crop ecosystem models.

01019521 Pesticides and the Environment **3(3-0-6)**

Properties of pesticides. Movement and fate of pesticides in the environment and their effects on non-target live organisms. The safe and effective use of pesticides.

01019531 Sustainable Crop Production **3(3-0-6)**

Crop production development in the context of sustainable agriculture. Technology of sustainable crop production. Basic and socio-economic of resources in agriculture. Farming system resources and development concept. On-farm testing and technology transfer. Holistic development of integrated crop production system. Sustainable crop production in organic farming systems. Field trip required.

01019541 Sustainable Animal Production **3(3-0-6)**

Theory and concept of animal farming system for sustainable production. Sustainable livestock farm management. Forage livestock system for sustainable animal production. Maximized use of resources from livestock production. Animal diversity for sustainable production. Environmental impacts from livestock farming. Management and utilization of waste from livestock farms. Consumer safety and animal welfare. Sustainable animal production. Animal production in organic farming systems. Field trip required.

01019551 Soil Fertility and Organic Matter **3(3-0-6)**

Soil factors affecting plant growth and quality with emphasis on the bio-availability of minerals. Management of soil organic matters. Principles of plant residue and animal decomposition. Relationship of human activities to the sustainability of soil ecosystem.

01019553 Natural Resources for Sustainable Agriculture **3(3-0-6)**

Natural resources: plant, animal, soil, and water in various types of ecosystems in both tropical and temperate regions of the world. Importance of natural resource diversity, utilization approach and appropriate management of natural resources in agricultural production system lead to sustainability. Field trip required.

01019561 Sustainable Agriculture **3(3-0-6)**

Conceptual framework of sustainable agriculture and its implications. The management and conservation of natural resource. The development of appropriate technology. Agricultural policy and resource management for the benefit of present and future agricultural productions and sustainable resources.

01019562 Technology Transfer for Sustainable Agriculture **3(3-0-6)**

Attitude towards chemical-based agricultural production, sustainable agriculture concept, advantages and disadvantages of both systems. Psychology in attitude change and technology transfer approach lead to sustainability of agricultural production

system.

01019563 **Sustainable Agriculture in Socio-economic Dimensions** **3(3-0-6)**

Economic impact of commercial agricultural system on individual, family, national and international levels. Developmental approach lead to self–sustainability at all levels in a society. Advantages and disadvantages of sustainable agricultural system from economic and social aspects.

01019591 **Research Methods in Sustainable Agriculture** **3(3-0-6)**

Research principles and methods in sustainable agriculture problem analysis for research topic identification, data collecting for research planning, identification of samples and techniques. Research analysis, result explanation and discussion, report writing, presentation and preparation for journal publication.

01019596 **Selected Topics in Sustainable Agriculture** **1 - 3**

Selected topics in sustainable agriculture at the master's degree level. Topics are subject to change each semester.

01019597 **Seminar** **1**

Presentation and discussion on current interesting topics in sustainable agriculture at the master's degree level.

01019598 **Special Problems** **1-3**

Study and research in sustainable agriculture at the master's degree level and compile into a written report.

01019599 **Thesis** **1-36**

Research at the master's degree level and compile into a thesis.