MS Food Security
& Climate Change

MASTER OF SCIENCE IN FOOD SECURITY AND CLIMATE CHANGE
(MS FSCC)

Professional Profiles and Learning Outcomes

The Master of Science in Food Security and Climate Change (MS FSCC) is a joint degree developed under the ERASMUS+ Capacity Building for Higher Education funding from 2016-2019. It was based on the identification of several professional profiles and learning outcomes that were defined at the initial kick-off meeting held in Los Baños, Laguna, Philippines in November 2016 after a discussion with professional organisations in charge of supporting agricultural development in the Philippines, Indonesia, Malaysia, and Thailand. The MS FSCC intends to develop professionals who will become policy advisors, development officers, extension workers, and researchers.

Project Members:

Policy Advisor

Related professions: policy maker, environmental lobbyist, communicator on climate change

Position of work: Public services in charge of the implementation of the policy measures, professional organisation, and NGOs

Upon completion of studies, the graduate should be able to:

1. Manage innovation and change management in agriculture

Understand the innovation processes in the rural society and the dynamics of innovation and changes that impact food security.

- Agriculture as a system (system approach from plot to ecosystem)
- Decision making in agriculture
- Rationale of agricultural systems
- The theory of change & innovation processes
- Strengths and limits of collective action

2. Assess biophysical mechanisms of contribution to, adaptation to and mitigation of climate change in agriculture

Understand the (biophysical) processes that lead to GHG emissions in agriculture and animal husbandry and the mechanisms that generate deforestation and changes in the land use (socio-economic dynamics)

- To develop a view of the agronomical and physiological mechanisms that contribute to GHG emissions in agriculture and in animal production
- To understand the socio economic processes leading to deforestation, land degradation, erosion (losses in environmental value)
- To understand the roles of the chain (before and after production)

Policy Advisor

3. Understand climate change models

> Understand the various models of climate change, and the main consequences of each of them on the needs of adaptation in agriculture

4. Command studies, or implement assessment of policies and technologies on both the production and the environmental points of view.

- Public policies in agriculture and environment
- Ecosystem services in agriculture and payment for ecosystem services
- Project management and project evaluation
- Environmental evaluation
- Life Cycle Assessment

5. Understand and assess various positions in international negotiations on trade, environmental resources & climate

- International agreements and trade and tariffs (WTO)
- International negotiations on environment (Ramsar, Desertification, CITES, UNFCCC)

6. Communication and management

- Open-mindedness
- Critical thinking
- Oral and written communication competence (including web communication)
- Capacity to work in teams
- Capacities for leadership
- Capacity to learn in a changing environment

Research Officer

Related professions: conception of cropping and animal rearing systems

Position of work: Research organisations (public & private), NGOs, extension services

Upon completion of studies, the graduate should be able to:

1. Assess biophysical mechanisms that contribute to adaptation to and mitigation of climate change in agriculture

Understand the (biophysical) processes that lead to GHG emissions in agriculture and animal husbandry and the mechanisms that generate deforestation and changes in the land use (socio-economic dynamics)

- To develop a view of the agronomical and physiological mechanisms that contribute to GHG emissions in agriculture and in animal production

- To understand the socio economic processes leading to deforestation, land degradation, erosion (losses in environmental value)

- To understand the roles of the chain (before and after production)

2. Research methods in agriculture

- Epistemology

- Ethics in agriculture

- Experimental designs

- Statistics and data management

- Surveys and qualitative data management

3. Understand climate change models

To understand the various models of climate change, and the main consequences of each of them on the needs of adaptation in agriculture

Research Officer

4. Understand agroecology and cropping systems (animal rearing systems)

The avenues of technical progresses: plant breeding, soil management, water conservation and use, crop protection, animal husbandry, conservation agriculture, forestry and agroforestry.

5. Understand innovation and change management in agriculture
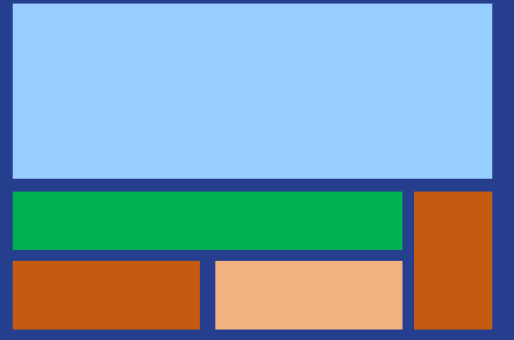
Understand the innovation processes in the rural society and the dynamics of innovation and changes that impact food security.

- Agriculture as a system (system approach from plot to ecosystem)
- Decision making in agriculture
- Rationale of agricultural systems
- The theory of change & innovation processes
- Strengths and limits of collective action

6. Communication and management

- Open-mindedness,
- Critical thinking
- Oral and written communication competence (including web communication)
- Capacity to work in teams
- Capacities for leadership
- Capacity to learn in a changing environment

Agricultural Development / Extension Officer

Related professions: extension agent, development officer, grassroot development support, officer in agricultural development

Position of work: Public services in charge divers support to the farming sector, professional organisation, NGOs

Upon completion of studies, the graduate should be able to:

1. Understand innovation and change management in agriculture

Understand the innovation processes in the rural society and the dynamics of innovation and changes that impact food security.

- Agriculture as a system (system approach from plot to ecosystem)
- Decision making in agriculture
- Rationale of agricultural systems
- The theory of change & innovation processes
- Strengths and limits of collective action

2. Biophysical mechanisms of contribution to, adaptation to and mitigation of climate change in agriculture

Understand the (biophysical) processes that lead to GHG emissions in agriculture and animal husbandry and the mechanisms that generate deforestation and changes in the land use (socio-economic dynamics)

- To develop a view of the agronomical and physiological mechanisms that contribute to GHG emissions in agriculture and in animal production
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- The roles of the chain (before and after production)

Agricultural Development / Extension Officer
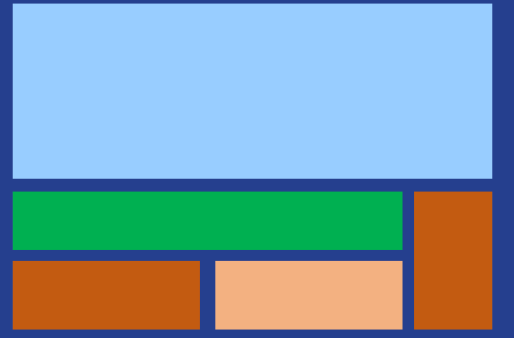
4. Understand agroecology and cropping systems (animal rearing systems)

The avenues of technical progresses: plant breeding, soil management, water conservation and use, crop protection, animal husbandry, conservation agriculture, forestry and agroforestry.

5. Project management

- Project cycle

- Communication, human resources management

- Project evaluation, M&E

- Environmental evaluation

- International negotiations on CC and adaptation/mitigation support (Kyoto CDM, REED+, Green fund)

6. Communication and management

- Open-mindedness

- Critical thinking

- Oral and written communication competence (including web communication)

- Capacity to work in teams

- Capacities for leadership

- Capacity to learn in a changing environment