Agricultural Management and the Environment

Organized by

Mediterranean Agronomic Institute of Montpellier

Agricultural Management and the Environment

MAI coordinator: Philippe Le Grusse

Aims

This Master aims at:

- providing training to engineers in charge of studies in territorial collectivities, organizations and institutions concerned with agricultural and rural development.
- teaching to economists and engineers the common language essential for team work.

In this course the management of agricultural production systems is addressed, taking into account both the economic and environmental approaches for engineers in charge of studies working for territorial collectivities, organizations and institutions concerned with agricultural development. With this aim, it includes the use of theoretical and practical tools as well as the acquisition of professional experience (individual and collective training) allowing trainees to be in contact with local actors and field realities but also to be immediately operational at the end of the course).

Objectives

This training programme provides:

- **knowledge**: analysis of the technico-economic functioning of a farm and of an agricultural region;
- **know-hows**:
  . implementation of decision-making methods, preliminary analysis and strategic steering at consultancy stage carried out individually or collectively; elaboration of optimization models for technical and production choices at farm and regional levels; coupling biophysic and economic models for decision-making in the field of natural resources and diffuse pollution management in agriculture.
  . **how to behave**: how to work in a multi-field team, how to make the interface between technical and socio-economic aspects.

The **first part** addresses the appropriate theoretical and practical methods and tools. Moreover, it allows trainees to be regularly put in real or professional situation: case studies, collective field studies, practicals.

The **second part** is dedicated to individual work and includes the realization of a 3-months training period in a firm and a thesis. The defence of the thesis before an appointed examining board leads to the Master of Science degree.

Part 1
Post-graduate specialisation programme

This programme is organized in 8 units (60 ECTS)

Prerequisites
6-24 Sept. '10

- Upgrade in economics and management (microeconomics, accounting, financial analysis and statistics).
- Upgrade in computer use (Word, Excel, PowerPoint, Internet).
- Introduction to documentary research.

Unit I
27 September to
8 October '10

ECONOMICS FOR RURAL DEVELOPMENT (3 ECTS)

Content:
Acquisition of the main tools allowing the analysis of a rural development process:

- Definition of the rural space,
- Spatial approach to development (per zone, territorial and regional development),
- Internal and external functioning of a production unit (reproduction Plan),
- Introduction to rural development problematics,
- Courses and collective reflection based on case studies.

Learning outcomes:

- to gain the knowledge of the main implements to analyse:
  - a rural development process,
  - the relation between rural and global development.
- to be able to identify the new paradigms on which to rely when initiating a rural development process.

***Evaluation procedure*:**
Classroom examination

Unit II
11-22 Oct. '10

PREDIAGNOSIS AND DATA ANALYSIS (3 ECTS)

Content:

- This course shows the methods used for a quick diagnosis applied to a rural zone,
- Introduction to data analysis.

Learning outcomes:

- to be able to identify the resource poeple of a given territory and to carry out interviews,
- to be able to carry out a pre-diagnosis,
- to be able to identify a development problematic from the analysis of existing information,
- to master data analysis.

Evaluation procedure:
Collective reports and classroom examination

Unit III
24 October to
16 November '10

DIAGNOSIS ANALYSIS OF A RURAL ZONE (6 ECTS)

Content:
This unit deals with the diagnosis analysis of a rural area: how to analyse the area's functioning; how to highlight the local advantages and constraints and subsequently identify the elements allowing to elaborate a development strategy.

It introduces to the methodology for diagnoses and to the methods for carrying out surveys.

It includes real-life scenarios and applications through the diagnosis analysis of a Mediterranean rural area (in France):
- elaboration of a Questionnaire based on the problematics of the case studied,
- on-the-field training: socio-economic survey carried out among the actors and producers of the area studied,
- introduction to the use of the STATBOX software followed by the correction, capture and processing of the data obtained during the survey (group work),
- results analysis and interpretation,
- writing the thematic reports and oral rendering to the actors of the area of the results of the study.

Learning outcomes:
- to carry out a diagnosis analysis of a rural territory through a field survey and the application of rural development theoretical and methodological implements,
- to work out a survey adapted to a given problematic,
- to analyse data and to explain the results obtained,
- to analyse precisely the socio-economical functioning of a rural area and to emphasize the elements (problems, assets, evolution prospects) enabling the elaboration of a local development strategy,
- to make a restitution of the results obtained from the analysis, in a synthetic way, using the communication tools provided by the actors involved in the given territory.

***Evaluation procedure*:**
Written report and oral presentation.

Unit IV
22 November to
17 December '10

MARKETS, POLICIES AND NEGOTIATIONS (6 ECTS)

Content:
The objective is to provide basic knowledge and capacity for critical analysis regarding the three aspects of political economy concerning the agricultural issue *stricto sensu*. This course includes lectures, case analyses, group work and a simulation game on an agricultural negotiation. Courses serving as a link between the three sections ensure the problematics continuity of these three fundamental parts of public policies.

This unit is thus structured around three parts.

1) The 1st part deals with "markets"
Based on the case analysis of two large markets of agricultural produce (wheat, fruit and vegetables), the course develops the main analytical problems concerning the analysis and regulation of international markets: competition and competitiveness, segmentation, protection, oligopoly and oligopsone effects.

2) The second part deals with "policies"
Based on a thorough analysis of the common agricultural policy and European mechanisms concerning rural development, this part also takes as counterpoint an agricultural policy in a Mediterranean third country. Special attention is paid to environmental questions and their incidence on public choices in rural, agricultural and food concerns.

3) The third part deals with "negotiations"
Based on the analysis of WTO and its different bodies functioning, this part proposes a simulation game on negotiation around the constitution of positions about particular 'Dossiers' elaborated during group work.

Learning outcomes:
- to master the basic knowledge (concepts and methods) of the various, themes that have been studied,
- to be initiated to the international political economy.

Evaluation procedure:
Classroom examination and 'Dossiers' elaborated during group work.

Unit V
3-28 Jan. '11

FARM MANAGEMENT (6 ECTS)

Content:
This unit allows to:
- master farm management techniques through the use of computer techniques (technico-economic follow-up at production level, labor organization, management of finances, budgets, farms accounting);
- elaborate a strategic development plan for a given farming enterprise through the use of a multi-periodic simulator (OLYMPE); and write a report of the management committee;
- experience of a real-life situation on-the-field with farmers and responsible professionals.

Learning outcomes:
- to be able to lead a consultancy process in management within a farm business using a technico-economical approach based on scenarios simulation.

Evaluation procedure:
'Dossier' on the basis of the report of a firm management committee (resulting from group work); oral presentation; classroom examination.

Unit VI
31 January to
25 Feb. '11

MODELLING AND DECISION-MAKING (6 ECTS)

Content:
This unit addresses:
- Farm modelling at decision-making level.
- Simulation and optimization models.
- Examples of modelling: formulation and resolution of an optimization model at farm level. Analysis of the results, interpretation and limits.
- Risk-taking modelling: different methods.
- Comparing the main biophysics simulation models.
- The CROPSYST model: vegetable-like growth modules, water, nitrates, salt, erosion.
- Construction of production functions.

Learning outcomes:
to be able to elaborate a technico-economical optimisation model for a farm business, regarding its choices of production workshops, using information resulting from a bio-physical simulation model, with the aim to evaluate the productivity and externalities of its vegetable productions.

Evaluation procedure:
'Dossier' presenting individual or group work.
Individual classroom written examination.

Unit VII
28 February to
25 March '11

ACTORS AND NATURAL RESOURCES MANAGEMENT (6 ECTS)

Content:

- Environmental and natural resources economics. Tools in the field of environmental policy: definition and implementation, taxes, quotas.
- Analysis of the interaction between individual and collective choices at regional level.
- Multi-agents systems : theoretical concepts and applications.
- Reactive and cognitive agents, coordination among agents.
- The transition from farm-size models to aggregated regional models.
- Case studies: basic structure of a regional model, formulation, functioning, data coherence, models validation.
- Use of regional simulation models for negotiation.
- Simulation game for negotiations and assessing collective choices in a small agricultural region.

Learning outcomes:

- to be able to develop representation models of agriculture's functioning at a regional level with the aim to use them in the framework of simulations and optimisations,
- to be able to build and animate cooperation and negotiation meetings resulting from the conclusions of these implements.

Evaluation procedure:
'Dossier' presenting individual or group work. Individual classroom written examination.

Unit VIII
April to May '11

PREPARATION OF THE TECHNICAL DOSSIER AND OF THE PROPOSAL FOR THE INDIVIDUAL TRAINING PERIOD IN A FIRM (24 ECTS)

Written technical dossier on a subject connected with the professional training period proposed (theoretical work).

Written proposal for the professional training period presenting: the *Training Order*, the area to be studied, the context, the methodology, the work schedule. This written proposal is to be defended before an examining board consisting of IAMM teachers.

ACADEMIC STAFF

During the first part of the programme, instruction is given by prestigious visiting lecturers from different countries, coming from higher education institutions, private companies, research centres, international organizations and administration bodies.

The international character of the program is also strengthened by the origin of attendants who come mostly from CIHEAM Mediterranean member countries but also from other parts of the world.

Part 2
The Master of Science programme

Professional training period in a firm, thesis and its defence (6 months, 60 ECTS)

This includes :

- an individual professional training period of 3 months minimum within a structure involved in rural development (research departments, local governments, ministries, NGOs, international bodies…). Work in connection with rural development engineering: diagnosis of a rural area, projects elaboration or evaluation, socio-economic study (10 ECTS);
- a thesis connected with the professional training period presenting the context, the theoretical frame, the methodology, the results; the defence of the above thesis before a jury of teachers-researchers and professionals (50 ECTS).

INDICATIVE MASTER THESES ALREADY ACHIEVED IN "AGRICULTURAL MANAGEMENT AND THE ENVIRONMENT"

1. **Title**: Farming systems analysis and modelling oriented towards the adoption of timber incorporating agroforestry systems in the OCAP area, Western Region (Ghana). (2008)
   Author: BASTERRECHEA ACHA Txaran (Spanish)
   Place of Realization: CIRAD, France
   Thesis director: Philippe LE GRUSSE

2. **Title**: Certification and economical and environmental performance of farms. Study of the certification of EUREPGAP in the strawberry farms in the Region of Gharb and Loukkous, Morocco (2009)
   Author: ALAMI Jamil (Morocco)
   Place of Realization: Office Régional de Mise en Valeur Agricole, Morocco
   Thesis director: Philippe LE GRUSSE

3. **Title**: Towards an irrigation management at a watershed level. Study of the "Basse Vallée de la Drôme" case (2008)
   Author: BRUNEL Laurent (French)
   Place of Realization: CEMAGREF, France
   Thesis director: Philippe LE GRUSSE

4. **Title:** Economical evaluation of a full open air bovine farm. Study of the case of the CIVAM group's cattle farmers (2008)
   Author : DOUAISSIA Samira (Algerian)
   Place of Realization: CIRAD, France
   Thesis director: Philippe LE GRUSSE

5. **Title**: Comparison study of production systems' economical effectiveness and efficiency considering various access situations to water resources: application in the area of Gharb (Morocco) (2008)
   Author: HARBOUZE Rachid (Moroccan)
   Place of Realization: IAV Hassan II, Maroc
   Thesis director: Philippe LE GRUSSE

Detailed additional information is available at
http://www.iamm.fr/enseignement/master_of_science