

CROP MODELING

LEVEL: MASTER 1

PERIOD: SEMESTER 1

LANGUAGE: EN

ECTS: 3

TEACHER/COORDINATOR: SITRAKA ANDRIANARISOA



1-Main objectives

- › Integrate different steps of crop models design
- › Understand formalities used to model different mechanisms occurring in the soil/plant/atmosphere system
- › Use crop models to simulate the functioning of agroecosystems
- › Discover some instances of the use of modeling by farmers

2-Skills developed

- › To be able to interact during the different steps of crop model design: conceptualization, formalization, parameterization, calibration and validation
- › To be able to think about the modeling of multiple processes involved in crop production (soil/plant/atmosphere)
- › To be able to use some models applied to crop management at farm scale.

3-General content

Lectures and concrete cases (36 hours)

Topic	Teaching hours
Definition, designing, parameterization, calibration and validation of crop model	8
Use of some crop models: simulation of agro-environmental performance of different crop management systems (e.g., variation in fertilizer inputs or in crop rotation/association, effect of climate change or soil type in crop production)	8
Models for weeds management, crop protection and fertilization	10
Examples of applied models: used in automatic robot, used in farm management	10

4- Evaluation

- › Individual work to simulate some situations of crop systems
- › Individual evaluation: written exam as multiple choice questions