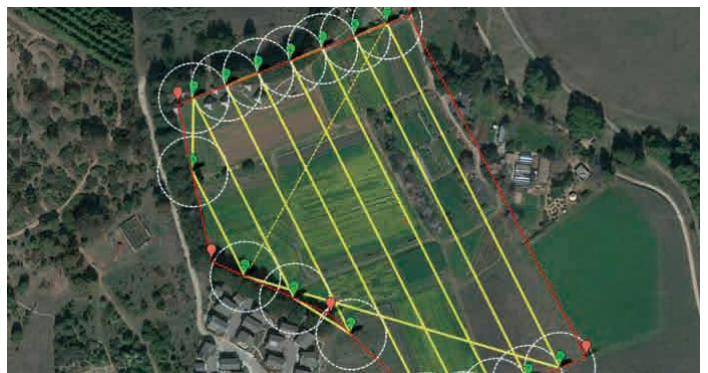




Master of Science Agricultural Data Management & Decision Models





OBJECTIVES

A Master of Science with a strong focus on innovation and data science for agriculture

- Interdisciplinary teaching in English: agriculture, big data, mapping, data mining, computing, machinery, project management, sociology, etc.
- Jobs centered on new technologies
- Innovation with a project led by professionals
- Expert supervision by professionals and researchers

The "Data Management and Decision Models" Master of Science is at the interface of cutting-edge technology and the agriculture and food industries. Topics of study include processing data from connected devices such as drones, satellites, tablets and smartphones and data on the behavior of stakeholders in a given field, and managing and analyzing big data for decision-making purposes.

It is widely believed that by 2020, big data will have had a revolutionary effect on companies in terms of management, research & development and marketing. The rapid development of digital technologies will result in the development of new approaches to agriculture, requiring new skills. The aim of the Master of Science is to train up data scientists for agriculture.

Our course enjoys the support of several academic and industry partners, including the Institute of Soil Science and Plant Cultivation (IUNG) in Pulawy (Poland), ISAGRI, Cap Seine, Coop de France, Defisol, INVENTIV IT, Agro EDI Europe, TheGreenData and F4F.

SKILLS

01/ The focus is on expertise in big data management, which has become a key factor in company performance and growth.

02/ The course is centered around the acquisition of IT and statistics techniques, data mining and machine learning applied to agriculture and the food industry in general, with a special focus on precision agriculture.

03/ Developing a good command of statistics software and programming languages will be a real strength for students interested in research and development in areas such as plant nutrition and plant and animal epidemiology.

COURSE STRUCTURE

- All lectures are taught in English • Some lectures in collaboration with the Polish Institute of Soil Science and Plant Cultivation (IUNG) • 6-month internship in industry
- Big data for companies project – Thesis.

AGRICULTURE AND ADVENT OF BIG DATA

- An overview of agriculture
- Sources and reliability of data in several agricultural sectors

DATA QUALITY MANAGEMENT IN AGRICULTURE

- Data cleaning / preprocessing / sampling strategy for big data
- Applied statistics
- Simulation methods

DATA ANALYSIS APPLIED TO AGRICULTURE

- Principal component analysis
- Cluster analysis
- Factorial analysis
- Discriminant analysis
- Software analysis (R, SPSS, etc.)

SURVEY METHODS

- Methods of collecting data
- Unstructured data
- Multiple correspondence analysis
- Survey data analysis
- Text mining: social network analysis, etc.

SOFTWARE ENGINEERING

- Software architectures: client-server, MVC, cloud computing, SOA, REST, microservices
- Software development: algorithmic, object-oriented programming, HMI, macro

IT BIG DATA MANAGEMENT

- Data sources in agriculture: sensors, communications protocols/ networks, data exchange standards in agriculture, open data, web of data
- Database design and modeling: relational, XML, multidimensional, OLAP, compared with NoSQL/ NewSQL databases, query languages

CROSS FIELDS

- Project management
- Rural sociology
- French language
- English language

AGRICULTURE

- Mechanized agriculture
- Micro parcels experimental designs
- Precision agriculture
- Decision-making tools

MACHINE LEARNING METHODS

- Cross validation method
- Neural networks
- K-means
- Regression trees, bagging
- Support vector machine
- Random forests
- Kernel methods
- K-nearest neighbors method
- Sparse methods for high-dimensional data

BIG DATA MANAGEMENT II

- Distributed file systems, Hadoop
- Parallel, distributed, massive data processing with Map Reduce
- NoSQL/NewSQL databases
- IT security for big data: vulnerabilities, protection-privacy/ security policies, cryptography

QUANTITATIVE IMAGE ANALYSIS

- Signal image processing
- Mapping, learning QGIS software

MODELING

- General linear method
- Non-linear method
- Time series modeling

CROSS FIELDS

- IS strategy / management, system integration
- French language (FLE)
- English language



SECTORS

This course is geared towards professions that are in increasing demand, such as:

- Data scientist/data miner
- Chief data officer
- Master data manager
- Epidemiologist (animals and plants)
- Data designer
- Agricultural machinery designer
- Consultant
- Research leader in agronomy
- Manager of animal health observatories
- Data/business analyst
- Designer/developer



BIG DATA FOR AGRICULTURE PROJECT

The aim of this project, led by professionals and researchers, is to design and develop innovative decision-making tools for agriculture.

Experience life in Rouen,
a city with over 37,000 students and a
buzzing and vibrant
student life.



Nearby: halls of residence and private rentals, university restaurant,
sports facilities, public transport network, etc.



BY TRAIN

Arrival at Rouen-Rive-Droite railway station
Bus stop opposite the station,
no. F2 to "Mont-Saint-Aignan"

BY BUS

TEOR no. T1: "Mont aux Malades" stop
Bus no. F2: "UniLaSalle" stop
Bus no. 43: "UniLaSalle" stop

BY CAR

GPS coordinates:
latitude: 49.468098
longitude: 1.072485



Contacts

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www.unilasalle.fr



ADMISSION

General engineering – Master's
degree or equivalent

Exceptionally, students
with a Bachelor's degree or
equivalent with experience

Selection shall be based on
the application and an interview

Download the application
form from www.unilasalle.fr

Return by:

- April 28, 2017
- June 30, 2017



REGISTRATION FEES

Tuition fees for
18 months: EUR 8,000



START OF TERM

October 2, 2017

OPEN DAYS



ROUEN CAMPUS

Saturday January 21, 2017

Saturday March 11, 2017



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our courses