

DEMOCRATIC AND POPULAR REPUBLIC OF ALGERIA

**MINISTRY OF HIGHER EDUCATION
AND SCIENTIFIC RESEARCH**

MASTER'S COURSE OFFER

PROFESSIONALIZING

Establishment	Faculty/ Institute	Department
Mohamed Khider University	Faculty of Natural and Life Sciences	Agronomic Sciences

Field: Natural and Life Sciences

Sector: Agronomy

Specialty: Quality and metrology applied to Agronomy

Academic year: 2017-2018

الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي والبحث العلمي

عرض تكوين ماستر
مهني

القسم	الكلية/ المعهد	المؤسسة
العلوم الزراعية	كلية العلوم الدقيقة و علوم الطبيعة و الحياة	جامعة محمد خيضر

الميدان : علوم الطبيعة و الحياة

الشعبة: الزراعة

التخصص : علم القياسات التطبيقية في الزراعة

السنة الجامعية: 2017/2018

SYNOPSIS

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I – Master’s identity card
(Quality and metrology applied to agronomy)
All fields must be completed)

1 - Location of training:

Faculty (or Institute): Natural Sciences and Life Sciences
Department: Agricultural Sciences
Section: LMD

2- Training partners *:

- Other academic institutions:

CRSTRA--ITDAS--DSA--INPV--UNIVERSITES

- Enterprises and other socio-economic partners:

AGRICULTEURS-EAC- EAE- DGF-CRSTRA - INRAA
-ITDAS-DSA-INPV-UNIVERSITES

- International partners: Universities and research institutes

CIRAD – INRA de Paris.

* = Present the agreements in the appendix of the training

3 – Training Context and Objectives

A – Conditions of Access

- Academic License Arido-culture and environment
- Professional or academic degree in Agronomy
- Professional or academic degree Biology and physiologieAnimal
- Professional or Academic Licence Environmental Science
- Other licenses accepted, upon study of the file and agreement of the pedagogical committee

B - Training objectives

- This Master aims to improve the curriculum of students specializing in metrology and management of means of controls in agronomy and food industry.
- The training aims to develop methods of analysis, control of organic products or food products.
- As a priority, the Master will acquire in-depth knowledge in the fields of basic science in metrology. It also provides training on the quality approach of Hygiene, GBPH, HACCP, Traceability, PMS, Process Hygiene.

- And finally, train professional metrology specialists on the basis of a good mastery of means of control and quality of measurements provided.
- Students assigned to this career path will be supported by agri-food manufacturing units. At the end of semester 4, candidates will present a thesis that they will support before a jury of magistral rank.

C – Profiles and skills covered:

This Master's degree must train senior metrology specialists who will be able to:

- Operate an analytical chain by integrating the quality and traceability of the results obtained
- Master the measurement instruments and calibration techniques used in different industrial fields.
- Identify the different causes of measurement uncertainty
- Be able to identify problems of agricultural product quality, analyze the causes, assess their consequences and design technically satisfactory solutions.
- Know the standards, regulations and instructions.
- support the company in its certification process

D- Regional and national employability potential of graduates

Graduates of the Professional Master's may pursue various activities, they will work mainly in:

- Laboratories and research institutes
- The agro-pharmaceutical industry: research, approval, experimentation, development, and marketing of food products
- National and regional plant protection stations (INPV and SRPV).
- Service and control laboratories.

- Companies in the agro-supply sector (phytopharmaceuticals, fertilizers, seeds, livestock feed)
- Crop phytosanitary expertise and monitoring and control of pesticide residues and other contaminants in plant products, quality assurance... etc.

E – Pathways to other specialties

This Master's degree offers a training that relates to plant production and its protection, so the student will have the opportunity to pursue his graduate studies in all fields of crop protection, plant breeding and disciplines that study natural substances...

F – Training Tracking Indicators

The monitoring indicators of the Master may concern the following points:

In the short term:

- Student attendance at courses, TP, and TD.
- Student participation rate,
- Quality of results of projects carried out by students.
- Graduation rate: number of graduates/ number of registrants
- Non-registration rate: Number of non-registered students/ number of registered students

In the long term:

- Follow-up of students after graduation to check their employability,
- Number of internships leading to a job,
- Sustainability and increased relationships with partners
- Number of doctoral students enrolled
- Number of master's graduates recruited in companies or research centers.

G – Coaching Capacity

Master 1: 40 students.

4 – Human resources available

A: Teachers of the institution involved in the speciality:

Last name, first name	Graduation degree + Specialty	Post graduation diploma + Specialty	Grade	Type of intervention *	Emargement
TARAI Nacer	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
MOUSSI Hamid	Biology engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
DEGHNOUCHE Kahramen	Veterinary doctor	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
BEN ZIOUECHE Salah	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
MEHAOUA M.Seghir	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
ASHURA Amar	Agricultural engineer	Doctorate	MCA	Course, TD, TP, Memory Coaching	
MESSAI Ahmed	Veterinary doctor	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
BOUKHALFA Hafida	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
MEZERDI Farid	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
FARHI Kamelia	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
SAIGHI Saida	Agricultural engineer	Magister	MAA	Course, TD, TP, Memory Coaching	
DEMNATI Fatma	Agricultural engineer	Doctorate	Pr.	Course, TD, TP, Memory Coaching	
RAZI Sabah	Agricultural engineer	Doctorate	MCA	Course, TD, TP, Memory Coaching	
DROUAI Hakim	Agricultural engineer	Doctorate	MCA	Course, TD, TP, Memory Coaching	
HADJEB Ayoub	Agricultural engineer	Doctorate	MCA	Course, TD, TP, Memory Coaching	

* = Course, TD, TP, Internship Coaching, Memory Coaching,

B: External Management:

Affiliated institution:

Last name, first name	Graduation degree + Specialty	Post graduation diploma + Specialty	Grade	Type of intervention *	Emargement
OUAKID Med Laid	Bachelor's degree in biology	Doctorate	Professor	Course, TD, TP, Memory Coaching	
LAMARI Malik	Agricultural engineer	Doctorate	Professor	Course, TD, TP, Memory Coaching	
HABBACHI Wafa	Bachelor's degree in biology	Doctorate	Lecturer A	Course, TD, TP, Memory Coaching	
MIMECHE Fateh	Agricultural engineer	Doctorate	Lecturer A	Course, TD, TP, Memory Coaching	
HUGENIN johann	Animal engineering engineer	Doctorate	Doctor	Course, TD, TP, Memory Coaching	
SI BACHIR Abd Elkrim	Agricultural engineer	Doctorate	Professor	Course, TD, TP, Memory Coaching	

* = Course, TD, TP, Internship Coaching, Memory Coaching,

5 – Specific material resources available

A- Teaching Laboratories and Equipment: Sheet of existing teaching equipment for the TP of the planned training (1 sheet per laboratory)

Laboratory Title:

Laboratory Title: Plant Analysis Laboratory

N°	Equipment title	Number	Observations
1	Porcelain crucibles	20	
2	Balance at 0.1mg precision	02	
3	Spatula	100	
4	Etuve at 105C°	02	
5	Tray	10	
6	Desiccator	03	
7	Muffle oven can work at 550°C	01	
8	Matras of 250 ml	10	
9	Weighing shoes	10	
10	Stems as support for hooves	01	
11	Heating ramp (or digester) of the type Gerhardt Kjeldatherm	01	
12	Distiller	01	
13	Volumetric flasks of 100 ml	15	
14	Erlens-meyers and beakers of 150 ml	10	
15	25 ml burettes	10	
16	5 ml pipettes	10	
17	Timer	03	
18	Funnels	15	
19	Specimen	04	
20	Magnetic stirrer, stirring bar	01	
21	Cellulose extraction cartridge	03	
22	Installation of Soxhlet (balloon under the extractor topped by a refrigerant with cooling water inlet and outlet).	01	
23	Bain-marie	01	
24	Watch lenses	10	
25	Tray for transport of crucibles	02	
26	glass chopsticks	10	
27	5 ml pipettes	15	
28	A hot plate or a sand bath	01	
29	Filter paper without ash- Vials of 50 ml	100	
30	Beakers	10	

Laboratory Title: Animal Biology Laboratory

N°	Equipment title	Number	Observations
1.	Fridge freezer	01	
2.	Bench scale	01	
3.	Bain-marie Memmert 22L	01	
4.	Benchtop centrifuge	01	
5.	Etuve Memmert	02	
6.	Spectrophotometer	01	
7.	Hotplate	02	
8.	Heated magnetic stirrers	02	
9.	Microscope	16	
10.	UV/Visible Spectrophotometer	01	
11.	Desiccator	02	
12.	Distiller	01	
13.	Rotary evaporator	01	
14.	Flask evaporator 50 ,100 ,250 ml pear	10	
15.	Bench conductivity meter	01	
16.	Precision scale	01	
17.	Porcelain mortar	01	
18.	Waste collection tank	10	
19.	Graduated pipettes of different sizes	50	
20.	Volumetric flasks of different sizes	10	
21.	Erlenmeyer glass	10	
22.	Beaker high and low shape of different capacities	10	
23.	Bunsen spout 13 mm natural gas	20	
24.	Vertical flow hood	01	
25.	pH meter bench	02	
26.	Thermometer	05	
27.	Plastic rack	10	
28.	Dissection kit	10	
29.	Microtome	01	
30.	Prepared blades	100	
31.	Transparent (filing cabinets)	04	

B- Internship and in-company training:

Internship location	Number of students	Internship duration
Experimental station of the Department of Agronomic Sciences/ Biskra	30	
Institut Pasteur/ Algiers	10	07 days
ITDAS BISKRA	10	07 days
INRAA BISKRA/ ALGIERS	10	07 days
INPV BISKRA/ ALGIERS	10	07 days
DEDSPAZA Laboratory	05	07 days
State pilot farms	10	07 days
Private farms	10	07 days

C- Research laboratory(s) supporting the master:

Head of laboratory: BELHAMRA Mohamed
Laboratory approval No. 87 dated 14/04/2013
Date: Opinion of the head of laboratory: Diversity of ecosystems and dynamics of agricultural production systems in arid zones

D- Research project(s) to support the master:

Title of the research project	Project code	Project Start Date	Project End Date
Study of insect pests of tomato under greenhouse and method of control	F0142013007 1	01/01/2014	01/01/2017
Technico-economic study of the tomato sector in the wilaya of Biskra	F0142013004 7	01/01/2014	01/01/2017
Plasticulture in the Ziban region (Biskra), development findings and prospects	F0142013003 3	01/01/2014	01/01/2017
Intensive agriculture and sustainable development issues in the Ziban region	F0142014001 5	01/01/2015	01/01/2019

E- Personal and ICT workspaces:

- Central Library;
- Department and Faculty Internet space;
- Data centre;
- Laboratories.

II – Semi-annual Teaching Organization Sheet

(Please present the sheets of the 4 semesters)

1- Semester 1:

Teaching unit	VHS	V.H weekly				Coeff	Credits	Evaluation mode	
	14-16 Week's	C	RW	PW	Other			Continuous	Review
fundamental EU									
UEF1(O/P)	112.5	4.5	00	03	137.5	05	10		
Subject 1: General metrology	45	1h30	00	1h30	55	2	4	50%	50%
Subject 2: Applied metrology	67.5	3h.00	00	1h30	82.5	3	6	50%	50%
UEF2(O/P)	90	03	1h30	1h30	110	04	08		
Subject 1: Legal metrology	45	1h30	1h30	00	55	2	4	50%	50%
Material 2: Instrumentation	45	1h30	00	1h30	55	2	4	50%	50%
EU methodology									
EMU1(O/P)	105	4.5	01h30	1.5	120	06	09		
Subject 1: Regulations	33.75	1h30	1h30/15d	00	41.25	2	3	50%	50%
Subject 2: Knowledge and Control of HSE Risk	33.75	1h30	00	1h30/15d	41.25	2	3	50%	50%
Subject 3: Bioinformatics	37.5	1h30	1h.00	00	37.5	2	3	50%	50%
EU discovered									
UED1(O/P)	22.5	1.5	00	00	2.5	01	01		
Subject 1: Economics and law in business	22.5	1h30	00	00	2.5	1	1	25%	75%
UE transversales									
UET1(Y/P)	45	1.5	1.5	00	05	02	02		
Subject 1: Communication	45	1h30	1h30	00	5	2	2	50%	50%
Total Semester 1	375	14.00	4.5	6	375	18	30		

2- Semester 2:

Teaching unit	VHS	V.H weekly				Coeff	Credits	Evaluation mode	
	14-16 Week's	C	RW	PW	Other			Continuous	Review
fundamental EU									
UEF1(O/P)	112.5	06	00	03	137.5	05	10		
Subject 1: Scientific metrology	22.5	1h30	00	1h30	27.5	1	2	25%	75%
Material2:Quality –soil-water	45	1h30		1h30	55	2	4	50%	50%
Subject 3: Nutrition and health	45	3h.00	00	00	55	2	4	25%	75%
UEF2(O/P)	90	03	00	03	110	04	08		
Material1: Quality-Food Hygiene-Safety	45	1h30	00	1h30	55	2	4	50%	50%
Material2: Food technology and manufacturing processes	45	1h30	00	1h30	55	2	4	25%	75%
EU methodology									
EMU1(O/P)	105	3.75	02.5	2.25	120	06	09		
Topic 1: Microbial Ecosystem Management	48.75	1h30	1h	1h.30/15d	51.25	3	4	50%	50%
Subject 2: Benchmarks and performance	33.75	1h.30/15d	1h30	00	41.25	2	3	50%	50%
Subject 3: Professional skills	22.5	1h30	00	00	27.5	1	2	25%	75%
EU discovered									
UED1(O/P)	45	1.5	1.5	00	05	02	02		
Subject 1 Company and QHSE management	45	1h30	1h30	00	5	2	2	50%	50%
UE transversales									
UET1(Y/P)	22.5	1.5	00	00	2.5	01	01		
Subject 1:Scientific English	22.5	1h30	00	00	2.5	1	1	25%	75%
Total Semester 2	375	16.5	04	8.25	375	18	30		

3- Semester 3:

Teaching unit	VHS	V.H weekly				Coeff	Credits	Evaluation mode	
	14-16 Week's	C	RW	PW	Other			Continuous	Review
fundamental EU									
UEF1(O/P)	90	4.5	00	1.5	110	04	08		
Subject 1: Control of organic food products	45	3h.00	00	00	55	2	4	25%	75%
Subject 2:epidemiology	45	1h30	00	1h30	55	2	4	50%	50%
UEF2(O/P)	112.5	03	03	1.5	137.5	05	10		
Material 1: Hygiene and environmental standards	67.5	1h30	1h30	1h30	82.5	3	6	50%	50%
Material2: residue measurement and analysis	45	1h30	00	1h30	55	2	4	50%	50%
EU methodology									
EMU1(O/P)	105	4.5	1.75	0.75	120	06	09		
Subject 1: Agricultural Experimentation	37.5	1h30	00	1h.00	37.5	2	3	50%	50%
Subject 2:Animal health	33.75	1h30	00	1h.30/15 d	41.25	2	3	50%	50%
Material 3: plant protection	33.75	1h30	00	1h.30/15 d	41.25	2	3	25%	75%
EU discovered									
UED1(O/P)	45	1.5	0.75	0.75	05	02	02		
Subject 1: Eco-toxicology and pollution risk	45	1h30	1h.30/15 d	1h.30/15 d	5	2	2	50%	50%
UE transversales									
UET1(Y/P)	22.5	1.5	00	00	2.5	01	01		
Subject 1: Entrepreneurship and project management	22.5	1h30	00	00	2.5	1	1	25%	75%

Total Semester 3	375	15.00	5.5	4.5	375	18	30		
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4- Semester 4:

Field: Natural and life sciences

Sector: Agronomy

Specialty: Quality and metrology applied to Agronomy

Internship in a company sanctioned by a thesis and a defense.

	VHS	Coeff	Credits
Personal Work (Memory)	500*	10	20
Work placement	250**	5	10
Seminars			
Other (Memory/Internship)			
Total Semester 4	750	15	30

* UEF

** EMU

5- Global Training Summary:(Indicate the separate global VH in progress, random work, for the 04 semesters of teaching, for the different types of EU)

VH \ UE	UEF	EMU	UED	UET	Total
Course	360	191,25	67,5	67,5	686,25
RW	67,5	56,25	33,75	22,5	180
PW	180	67,5	11,25	0	258,75
Personal work	742,5	360	12,5	10	1125
Other (Memory/Internship)	500	250	0	0	750
Total	1850	925	125	100	3000
Credits	74	37	5	4	120
% in credits for each EU	61,67	30,83	4,17	3,33	100%

III - Detailed programme by subject (1 detailed sheet by subject)

Semester 1

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

Title of the EU: Fundamental

Subject title: General metrology

Credits: 4

Coefficients: 2

Teaching objectives:

Mastery of modeling and measurement management system

Prior knowledge recommended

1-Physical

2- Chemistry, Biochemistry.

Content of the material:

Chap 1 General on Measurement

1.1 Definitions

1.2 System of international units and its symbols

1.3 Formation of multiple and sub-multiple units

1.4. Modelling relationships between physical units

Chap 2. Metrology and Quality

2.1 Quality Certification Issues

2.2 The organization of a calibration chain

2.3 Quality Standards Reminders I.S.O. 9000

2.4 The various possible errors

2.5 Typical types of errors

Chap 3. Measurement Chain

3.1 Principle of a measurement chain

3.2 Measurement Range

3.3 Storage

3.4 Calibration Curve

3.5 Sensitivity

Personal work: Internship in a manufacturing unit

Evaluation mode: content control + exam

References

Institution: Mohamed Khider Biskra University
Title of the master: Quality and metrology applied to Agronomy
Academic year: 2017-2018

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

Title of the EU: Fundamental

Subject title: Applied metrology

Credits: 6

Coefficients: 3

Teaching objectives:

Allows the student to understand the concepts of experimental metrology and learn dimensional and numerical measurement techniques.

Prior knowledge recommended

Physics, Chemistry

Content of the material:

Chapter I: Mosquito measures

Chapter II: Electrical measures

Chapter III: Volume Measurements

Chapter IV: Force Measurements

Chapter V: Temperature Metrology

Chapter VI: Dimensional Metrology

Chapter VII: Pressure Metrology

Chapter VIII: Mass Metrology

Chapter IX: Metrology of optical and thermal radiation

Practical Work: Working in the Laboratory

Personal work: Internship at manufacturing units

Evaluation mode: content control + exam

References

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

Title of the EU: Fundamental

Subject title: Legal metrology

Credits: 4

Coefficients: 2

Teaching objectives:

Legal metrology is the activity by which the state intervenes by way of regulation on regulated measurement instruments used in commercial operations and in all adversarial transactions.

Prior knowledge recommended

Measurement quality standards

Content of the material

Chapter I Legal Weighing Metrology Framework

Statutory instruments

Directive 2009/23/EC

Order in Council 91-330

Standard EN 45501 and recommendation OIML R 76

Order of 22 June 1992

Order of 26 May 2004

Chapter II Regulatory Mechanisms

Role of the builder

Bonds

At design

At construction

Role of the holder

Bonds

At the acquisition of the balance

At the installation

During duty

Chapter III Evaluation of metrological characteristics

Peripherals: repeaters and printers

Regulatory markings

Role of the service provider

Bonds

State approval

Adherence to procedures

Area of competence

Audits and Reviews

Repair

Tutorials: Regulated measuring instruments

Personal work: internship at the manufacturing units

Evaluation Mode: Content Control + Exam

References: Non-automatic Weighing Instruments
(IPFNA) *Pocket Guide*

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

Title of the EU: Fundamental

Subject title: Instrumentation

Credits: 4

Coefficients: 2

Teaching objectives:

This course aims to give knowledge on the techniques of implementation of measuring instruments, sensor actuators and controllers, in order to create a data acquisition system.

Prior knowledge recommended

Basic elements in physics.

Content of the material

Chapter I: Instruments and Measurement

- Measuring principle
- Measurement methods
- Measured values
- True value
- Systematic error
- Measurement bias
- Random error
- Repeatability conditions

Chapter II: Reproducibility of measurement

- Uncertainty
- Standard uncertainty
- Uncertainty – composite type
- Uncertainty – relative type
- Calibration
- Correction

Practical work:

-Laboratory work

Personal work: Internship in a manufacturing unit

Evaluation Mode: Content Control + Exam

References://www.bipm.org/en/publications/guides/vim.html

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

Title of the EU: Methodology

Subject Title: Regulations

Credits: 3

Coefficients: 2

Teaching objectives:

This module aims to ensure knowledge in international regulation of legal measurement equipment. Decrees and their practical applications in administrative controls. Statistical control plan of prepackages, acceptance and rejection limits, deviation and weight control.

Prior knowledge recommended

Content of the material:

Chapter I: Identification of Fillers

Name or company name

Geographical location of the packer

The mark or inscription referred to

The code

Prepackages bearing the sign

Non-united prepackages of the sign

In case of practical impossibility to use the mentioned mentions

Chapter II Means of production control

Legal weights verified in accordance with the provisions of the decree

Special weights of appropriate values

Non-automatic weighing instruments

Tutorials

Dealing with examples.

Personal work: Internship at a manufacturing unit

Evaluation Mode: Content Control + Exam

References: <http://www.mesures.com/bibliographie/71?view=livre>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

EU Title: Methodology

Title of the subject: Knowledge and Management of HSE Risk

Credits: 3

Coefficients: 2

Objective of teaching

This module aims to identify, evaluate and prioritize the risks relating to the activities of an organization, whatever the nature or origin of these risks, to treat them methodically in a coordinated and economical manner, so as to reduce and control the probability of feared events, and reduce the possible impact of these events.

Prior knowledge

Business management

Content of the subject

Chapter I Enterprises and uncertainties

- 1.1 Definition of the term “risk”
- 1.2 Part of uncertainty
- 1.3 Risk factor
- 1.4 Impact and severity

Chapter II Fine points of risk analysis

- 2.1 Qualitative management
- 2.2 Severity scale and temporal scale
- 2.3 Quantitative risk management

Chapter III Steps and principles of risk management

- 3.1 Perception and explanation
- 3.2 Risk assessment
- 3.3 Risk management
- 3.4 Risk management measures
- 3.5 Control

Chapter IV Specific approaches to risk management

- 4.1 Project risk management
- 4.2 Societal risk management
- 4.3 Hazard study
- 4.4 Financial risk management
- 4.5 Vulnerability study

TP: Risk analysis

Personal work: internship at a manufacturing unit

Evaluation method: Content control + review

References:

Risk management. Global approach. AFNOR. 2002. ([ISBN2-12-169211-8](#))

Risk management - Principles and guidelines. ISO 31000:2009

Rasse G., 2008, Risk prevention plans, Collection Sciences du Risque et du Danger, Éditions Lavoisier.

Van Wassenhove W., Garbolino E., 2008, Feedback and risk prevention, Risk and Danger Sciences Collection, Éditions Lavoisier.

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

EU Title: Methodology

Title of the subject: Bioinformatics

Credits: 3

Coefficients: 2

Objective of teaching

This module aims to ensure knowledge on methods of genome analysis and modeling the evolution of an animal population in a given environment, through molecular modeling, image analysis, genome assembly and reconstruction of phylogenetic trees.

Prior knowledge recommended

Biology, computer science

Content of the material:

- Definitions and scope
- Sequence analysis
- Molecular modelling
- Phylogenetic tree construction
- Population modelling

Directed: Construction of phylogenetic trees, Population modelling

Personal work: Internship at a manufacturing unit

Evaluation mode: content control + final exam

References:<http://www.sfbi.fr/>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

EU Title: Methodology

Title of the subject: Economics and law in business

Credits: 1

Coefficients: 1

Objective of teaching

Corporate law, or commercial law, addresses several themes related to the company: commercial law, companies, contracts, competition and consumption, payment and credit instruments, labour law, tax law, business criminal law, business law in difficulty, international law.

Prior knowledge recommended

Economy.

Content of the material:

- Business concept
- Enterprise law approach
- Historical evolution of company law and commercial law
- Sources of commercial law

Directed: corporate and commercial law

Personal work: Internship at a manufacturing unit

Evaluation mode: content control + final exam

References: <http://www.cours-de-droit.net/cours-de-droit-de-l-entreprise-c27646978>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 1

EU Title: transverse

Title of the subject: communication

Credits: 2

Coefficients: 2

Objective of teaching

Exploitation of scientific documents and initiation to the writing of an article in English.

Prior knowledge recommended

English, Computer

Content of the material:

- 1-General reminder
- 2-Analysis of scientific articles
- 3-Translation of a scientific article
- 4- Initialization to the writing of a scientific article

Directed: Presentations

Personal work: Translation of a scientific article

Evaluation mode: content control + final exam

References: http://www.anglaisfacile.com/cours_anglais

semester 2

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Fundamental

Title of the subject: Scientific metrology

Credits: 2

Coefficients: 1

Teaching objectives:

This module aims to ensure a thorough knowledge of scientific metrology, the part of metrology that is responsible for defining units of measurement, making them (standards), comparing them between countries.

Prior knowledge recommended

General and legal metrology

Content of the material:

- International fundamentals and prototypes
- Comparison of national and international standards
- Organisation of international comparisons at national standard level;
- Assurance and coordination of corresponding measurement techniques
- Coordination of determinations of fundamental physical constants

Personal work: Internship in a company

Evaluation Mode: Content Control + Exam

References : *Évaluation des données de mesure : Guide pour l'expression de l'incertitude de mesure GUM*, BIPM, 2008

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Fundamental

Title of the subject: Physico-chemical quality ,soil-water

Credits : 4

Coefficients: 2

Teaching objectives:

The soil provides plants with water and minerals necessary for their development. It is an environment for the exchange of materials and its composition affects the quality of spring water. What are the exchanges of materials in the soil? What is the composition of a drinking water?

Prior knowledge recommended

Pedology

Content of the material:

- Ion exchange in soil
- Fertilizers and plant protection products
- Drinking water
- Chemical and bacteriological composition

Practical work: Soil and water analysis

Personal Work: Presentations

Evaluation mode: content control + exam

References:

www.mapaq.gouv.qc.ca/fr/Productions/.../sol-eau/Pages/Conservation-sol-eau.aspx

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Fundamental

Title of the subject : nutrition and health

Credits : 4

Coefficients: 2

Teaching objectives:

The links between nutrition and health are becoming better known. The risk of developing many diseases - cancer, cardiovascular disease, obesity or type 2 diabetes - can be reduced by following national nutritional recommendations. Based on multiple scientific studies, these recommendations will evolve with the acquisition of new knowledge.

Prior knowledge recommended

Microbiology

Content of the material:

- Health and physical activity
- Fruit and vegetables
- Dairy products
- Meat-fish – Eggs
- Fats
- Salt
- Water

Personal Work: Field Survey

Evaluation mode: content control + exam

References:

<http://www.inserm.fr/thematiques/sante-publique/dossiers-d-information/nutrition-et-sante>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Fundamental

Title of the subject : Qualité-Hygiène alimentaire-Sécurité

Credits : 4

Coefficients: 2

Teaching objectives:

Food security exists when all human beings have, at all times, the physical, social and economic possibility of obtaining sufficient food, healthy and nutritious to meet their dietary needs and preferences for healthy and active living

Prior knowledge recommended

Microbiology

Content of the material:

- 1- History
- 2- Sufficient and Necessary Quantity
- 3- Food quality & safety
 - 3.1- A new «hygiene package» in Europe, planned for 2016
- 4- Factors of food insecurity
 - 4.1- Water shortage
 - 4.2- Soil Degradation
 - 4.3- Climate Change
 - 4.4- Population explosion
 - 4.5- Epidemics
 - 4.6- Inappropriate Governance
- 5- State intervention and role in agriculture for food security

Evaluation mode: content control + exam

References:

http://ec.europa.eu/food/fvo/index_en.htm

Title of the Master: Quality and metrology applied to Agronomy
Semester: 2
EU Title: Fundamental
Title of the subject : Food technology and manufacturing processes

Credits : 4
Coefficients: 2

Teaching objectives:

Food technology is the application of food science and scientific techniques to the selection, preservation, processing, packaging, distribution and use of food for a healthy and balanced diet, good nutritional value and organoleptic quality.

Prior knowledge

Microbiology

Content of the material

- Food technology
- Scientific selection techniques
- Conservation
- Transformation
- Conditioning
- Distribution

Practical work: Examples covered

Personal Work: Presentations

Evaluation mode: content control + exam

References:

<http://www.umass.edu/>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Methodology

Title of the subject: Management of microbial ecosystems

Credits: 4

Coefficients: 2

Objective of teaching

Microorganisms constitute about 50% of the biomass of the entire biosphere and represent major agronomic challenges in agriculture, livestock, food, human and animal health, renewable energy production and synthons, pollution control or waste treatment.

Prior knowledge

Micobiology

Content of the material

- Microbial ecology
- Ecology of purifying biomass
- Importance of rumen microbes for sustainable agriculture
- Remediation processes through microbial ecosystems

Practical work:

1. Isolation of bacteria
2. Conditioned livestock

Personal work: Internship in a manufacturing unit

Evaluation mode: content control + exam

References: <https://inra-dam-front-resources-cdn.brainsonic.com>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Methodology

Title of the subject: Quality and metrology applied to agronomy

Credits: 2

Coefficients: 1

Objective of teaching

A repository serves as a guide for the construction and verification of a system. It is a model of requirements.

Prior knowledge recommended

Management - Economics

Content of the subject:

- Quality Management
- ISO 9001 Quality Management System
- Certifications Products/Services.
- Management of the IT sector:
- Quality management of IT production (from ITIL to ISO 20,000)
- Information security (ISO 27 001),
- Computer Development Practices (CMMI).
- Sustainable Development Management: ISO 26000
- ISO 14001 environmental management
- Guide SD 21,000.
- Performance Management:
- Professional Equality Label;
- Diversity label;
- Investors in People; SA 8000; SAS 70.
- EFQM Excellence Model
- The self-assessment
- methodical and formalized self-diagnosis.

derivative works : Management -Quality

Personal Work : Presentations

Evaluation mode: continuous control + examination

References: <http://www.qualiteperformance.org>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: Methodology

Title of the subject: professional competence

Credits: 3

Coefficients: 2

Objective of teaching

A professional competency means the demonstration by an individual that they have the ability – that is, the knowledge, skills and attitudes – to perform a professional act, an activity or task – in accordance with a standard and/or any other predetermined requirement.

Content of the subject:

- Skills Self-Assessment
- Professional Development Management
- Information tools on current standards and public policies and best practices with reference to available sources by organizations...
- Recruitment (e.g. identification of the desired profile, assessment of candidates)
- Development and revision of job descriptions
- Competency assessment
- Performance evaluation
- Training and skills development
- Structuring a human resources department

Personal Work: Individual Self-Assessment

Evaluation mode: continuous control + examination

References: www.portailrh.org/continuing_education/guide/

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: discovery

Title of the subject: professional competence

Credits: 2

Coefficients: 2

Objective of teaching

Develop and implement a QHSE policy in the company. Sensitize staff on health, safety and environment. Assess and treat occupational risks. Set up a management system. Audit the Quality, Health and Environment systems. Check the application of HSE regulations. Coordinate the response in case of an accident.

Prior knowledge recommended

Economy

Content of the material:

1. Management issues and responsibilities

- Fundamentals of management
- The company, the system approach
- QHSE management
- Regulatory and normative aspects
- Missions of the QHSE manager

2. The principles of management.

- Management standards and standards
- Management tools
 - o Ishikawa diagram)
 - o The QQQQCP
 - o FMEA
 - o 5S

3. Quality Management System (QMS)

- General information on quality management
- The requirements of ISO 9001
- QMS Implementation Process
- QMS Implementation Phases

- QMS Evaluation and Improvement

Personal Work: Presentations

Evaluation mode: continuous control + examination

References :

<http://www.ifact-dz.com/formation-qhse/manager-qhse-qualite-hygiene-securite-et-environnement/>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 2

EU Title: transverse

Title of the subject: Scientific English

Credits: 1

Coefficients: 1

Objective of teaching

writing a scientific article

Recommended prior knowledge:

English , French

Content of the material:

- Summary
- Introduction
- Materials and methods
- Results and discussion
- Conclusion
- Bibliography

Personal work: Writing an article

Evaluation mode: continuous control + examination

References : Portail SNDL , WWW.univ-biskra.dz

Semester 3

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Fundamental

Title of the subject: Control of organic food products

Credits: 4

Coefficients: 2

Teaching objectives

Consumers are showing unprecedented interest in food production, processing and marketing and increasingly inviting their governments to assume more responsibility, both in terms of security food safety and consumer protection.

Prior knowledge recommended:

Microbiology

Content of the subject:

- Main Food Problems
- Elements of a National Food Control System
- Strengthening National Food Control Systems
- Development of a National Food Control Strategy
- Specific Problems of Developing Countries

Personal work: Production of food data sheets

Evaluation mode: continuous monitoring + examination

References:

www.fao.org/3/a-t0396e.pdf

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Fundamental

Title of the subject: Epidemiology

Credits: 4

Coefficients: 2

Teaching objectives

Epidemiology is the study of factors affecting the health and diseases of populations. This is a discipline that relates to the distribution, frequency and severity of disease states.

It collects, interprets and uses information on health problems. Its objectives are health promotion and reduction of health problems.

Content of the material:

- detect an epidemic
- Identify a new disease
- Describe the risks to which a population is exposed in a given environment.
- Research the causes of ailments,
- Assess the importance of a problem,
- Make and verify assumptions
- Evaluate care (diagnostic and screening techniques, treatment, public health programs),
- Assess progress through falling mortality or morbidity.

Personal Work: Disease Fact Sheet

Evaluation mode: continuous monitoring + examination

References

<http://www.infirmiers.com/etudiants-en-ifs/cours/cours-sante-publique-lepidemiologie.html>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Fundamental

Title of the subject: Hygiene and environmental standards

Credits: 6

Coefficients: 3

Teaching objectives

Quality, Hygiene, Safety, Environment (QHSE), also known as Hygiene, Health, Safety, Environment (HSSE), Quality, Safety, Environment (QSE) or Hygiene, Safety, Environment (HSE), is an area of technical expertise controlling aspects related to professional risks within the company in order to lead to an integrated management system

Content of the material:

1. Occupational risk: the employee and his company
 - 1.1 The main risks
 - 1.2 The approach to prevention
2. The economic stakes
 - 2.1 The cost of the HSE policy
 - 2.2 Stress at work: a significant cost
 - 2.3 The benefits of an environmental policy
3. HSE in the company: a societal challenge
 - 3.1 The SEVESO ranking
 - 3.2 The different actors within the company
 - 3.3 The legal tools
 - 3.4 The influence of a good HSE policy on the company

Work Directed: Written and oral presentations on health and safety topics

Personal Work:

Evaluation mode: continuous monitoring + examination

References

<https://www.iso.org/en/ics/13.html>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Fundamental

Title of the subject: Measurement and Analysis of Residues

Credits: 4

Coefficients: 2

Teaching objectives

The objective of the training is to develop and validate tools allowing the identification and quantification of pesticides in the different compartments of the environment, taking into account the different contexts to be considered and for which the concentration levels can be very differentiated. . As there is no system for directly measuring pesticide concentrations, it is therefore necessary to use a trapping step during which the compounds are retained on a solid support by adsorption if the pesticides are not present in a matrix. solid (this is the case for measurements in water or air for example). The pesticides are then extracted from the solid support and then analyzed. The quantity captured, directly proportional to the concentration in the medium, must be sufficient to be detected by chromatography techniques.

Recommended prior knowledge

Chemistry- Biochemistry

Content of the material:

- Pesticides
- Pesticide analysis
- Metrological analysis methods
- Regulations

TP:Pesticide analysis

Personal work:Internship, Date packaging unit

Mevaluationcode:continuous monitoring + examination

References

www.nri.org/projects/publications/ecological_methods/h_chapter6_fr.pdf

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Methodology

Subject title: Agricultural experimentation

Credits: 3

Coefficients: 2

Teaching objectives

Learn to develop an experimental protocol so as to be able to apply all scientific calculation and exploitation techniques to its results.

Recommended prior knowledge

No particular prerequisites.

Content of the material:

CHAPTER I: AGRICULTURAL EXPERIMENTATION

I.1– Purpose of agricultural experimentation

I.2– Problems posed by agricultural experimentation

CHAPTER II: THE GENERAL PRINCIPLES OF AGRICULTURAL EXPERIMENTATION

II.1– Problem position

II.2 –Comparison of two observed averages

II.3– Comparison of K averages

CHAPTER III: EXPERIMENTAL DEVICES

CHAPTER IV: COMPARISON OF SEVERAL AVERAGES TWO BY TWO

IV.1– Duncan method

IV.2 –Multiply row method

TD:Multivariate statistical analysis by XLSTAT

Personal work:Presentations

Mevaluation code:continuous monitoring + examination

References :

CAILLIEZ F., PAGES J.-P. Introduction to data analysis. SMASH, 1976.

CIBOIS, P. Factor analysis. PUF, 1987

COCHRAN WG, COX GM Experimental designs, 2nd edition. Wiley, 1957.

COTTRELL M., COURSOL J. Planning experiments. Economica, 1989.

DAGNELIE P. Statistical theory and methods (vols. 1 and 2). Gembloux agronomic presses, 1970.

DAGNELIE P. Principles of experimentation. Presses Agronomiques de Gembloux, 1981.

DAGNELIE P., 2011. Theoretical and applied statistics. Volume 2. Statistical inference in one and two dimensions. Brussels, De Boeck, 736 p.

DYKE GV Comparative experiments with field crops, 2nd edition. Charles Griffin, 1988.

FEDERER WT Experimental design, Theory and Application. The Macmillan Company, 1955.

LECOMPT M. Experimentation and fertilizers. SPIEA, 1965. BOUROCHE, JM and SNEDECOR GW, COCHRAN WG Statistical Methods ACTA, 1974

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Methodology

Subject title: Animal health

Credits: 4

Coefficients: 2

Teaching objectives

Performing the care prescribed by the professional (Blood Samples, Medications, Dressings, etc.).

Prior knowledge recommended

Animal biology

Contenu de la matière :

- Préparation Du Matériel Et De L'animal
- Examen Physique,
- Radiographie,
- Plâtre Etc.)
- Analyse D'échantillons
- Sang, Urine, Fèces, Tissus, Etc.)
- Éducation Et Service À La Clientèle
- Vaccins, Alimentation, Comportement, Élevage
- Entretien D'une Animalerie (Clinique, Recherche, Commerce)

Content of the material:

- Preparation Of Material And Animal
- Physical exam,
- Radiography,
- Plaster etc.)
- Sample analysis
- Blood, Urine, Feces, Tissues, etc.)

- Education And Customer Service
- Vaccines, Nutrition, Behaviour, Livestock
- Pet Shop Maintenance (Clinic, Research, Trade)

Practical Work: Practical session at the breeding room level

Personal Work: Presentations

Evaluation mode: continuous monitoring + examination

References

<http://www.cegepsth.qc.ca/programme/techniques-de-sante-animale/>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Methodology

Subject title: plant protection

Credits: 2

Coefficients: 1

Teaching objectives

Crop defence or crop protection aims to reduce crop losses, direct or indirect, due to the activity of bio-aggressors and various abiotic factors. These losses may occur during the period of cultivation, before harvest, or after harvest, in phases of transport, storage and processing of agricultural products.

Prior knowledge recommended

Prior knowledge of fundamental phytopathology, notions of botany

Content of the material:

- 1-Fight against physical aggression
- 2-Fight against nutritional deficiencies
- 3-Fight against the enemies of cultures
 - 3.1.Methods of control
 - 3.1.1Cultural Practices
 - 3.1.2Regulatory measures
 - 3.1.3.Genetic Control
 - 3.2 Directive Control Methods
 - 3.2.1 Mechanical Unit

3.2.2. Chemical Exposure

3.2.3 Organic light

3.2.4. Integrated Valve

Practical work: - Pathogenicity test

Personal Work:

-Presentations on some topics of the specialty

- Visits to some specialised establishments

Evaluation mode: continuous monitoring + examination

Références

http://pip.coleacp.org/files/documents/COLEACP_Manuel_7_FR.pdf
<http://www.legifrance.gouv.fr/affichCode.do?idArticle=LEGIARTI000006582984&idSectionTA=LEGISCTA000006152416&cidTexte=LEGITEXT000006071367&dateTexte=20080305>

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: Discovery

Title of the subject : Ecotoxicology and Pollution Risks

Credits: 2

Coefficients: 2

Teaching objectives

Teaching objectives

This module aims to teach all the factors (chemical, physical, etc.) which cause pollution to all ecosystems, that is to say the environment in general, and the risk factors posed to the environment. To be human

Recommended prior knowledge

Concepts of ecology, phytopharmacy,.

Content of the material:

Course:

I Introduction to ecotoxicology

1-Definition, principles and issues of ecotoxicology

2-Biomarkers in ecotoxicology (Definition, interest and use)

3-Ecotoxicological bioindicators

II Concept of toxicology

1 Definition

2-Different stages of action of a toxic substance

3-Different types of toxicity

4-Evaluation of toxicity

5-Main physiotoxicology effects

6-Influence of ecological factors on toxicity5. Point pollution.

III-Risks of pollution

Historical

1- Definition of pollution

2-Pollution Classifications

3-Effects of air pollution on climate

4-Disruptions of biochemical cycles

5- Eco-toxicological consequences

- a. Impact of pollution on forest ecosystems
- b. Impact of air pollution on agroecosystems
- c. Impact of air pollution on human health

Directedwork:

- Assessment of exposure to pesticide residues in agricultural products.
- Calculate the toxicological risk in an adult and a child (PSTI)

Practical work:

- Determination of polluting elements using the atomic absorption spectrophotometry method
- Manipulation of exposure models to phytosanitary products.

Personal work: Presentations

Methods of evaluation code: continuous monitoring + examination

Title of the Master: Quality and metrology applied to Agronomy

Semester: 3

EU Title: transverse

Subject title: Entrepreneurship and project management

Credits: 1

Coefficients: 1

Teaching objectives

The objective in Entrepreneurship is therefore to offer students a global vision of the different facets of entrepreneurship, its challenges, its risks and its characteristics.

Prior knowledge recommended

Management, Statistical Economy

Chapter 1: Entrepreneur and Entrepreneurship

- Definition of entrepreneurship
- Contractor Characteristics:
- Entrepreneurship in the economy
- GEM Case Studies

Chapter 2 : The entrepreneurial approach

- What is an opportunity?
- Innovation
- Why innovate and barriers to innovation
- Key factors in innovation
- The market analysis

Chapter 3: The evolution of the company

- The growth
- The internationalisation of the company

Chapter 4: Idea, creation, development and after?

- The transmission
- The recovery
- Failure and the second chance

Chapter 5: Business Plan and Partners

- The Business Plan
- The Partners
- Analysis of an entrepreneurial theme with student groups

Personal Work: Presentations

-Analysis of an accounting balance sheet- Preparation of technical sheets–
Calculates costs and costs and margins-
Concept of yield and productivity and value

Methods of evaluation code: continuous monitoring + examination

Références

Entrepreneuriat, Michel Coster, Pearson Education, 2009

Soparnot R., 2012-Organisation et gestion de l'entreprise

Collection: Les Topos , Dunod - 2ème édition - 128 p.

Soparnot R., 2009- Management des entreprises, Stratégie. Structure. Organisation.

V- Agreements or conventions

Yes

NO

(If yes, transmit the agreements and/or conventions in the paper training file)

STANDARD LETTER OF INTENT

(In the case of a master's degree co-sponsored by another university establishment)

(Official paper on the header of the university establishment concerned)

Subject: Approval of co-sponsorship of the master's degree entitled:

The university (or university center) hereby declares that it co-sponsors the above-mentioned master's degree throughout the accreditation period of this master's degree.

To this end, the university (or university center) will assist this project by:

- Giving his point of view in the development and updating of teaching programs,
- Participating in seminars organized for this purpose,
- By participating in defense juries,
- By working to pool human and material resources.

SIGNATURE of the legally authorized person:

FUNCTION :

Date :

STANDARD LETTER OF INTENT

(In the case of a master's degree in collaboration with a company in the user sector)

(Official company letterhead)

OBJECT :Approval of the project to launch a master's degree course entitled:

Dispensed to:

The company hereby declares its willingness to demonstrate its support for this training as a potential user of the product.

To this end, we confirm our support for this project and our role will consist of:

- Give our point of view in the development and updating of educational programs,
- Participate in seminars organized for this purpose,
- Participate in defense juries,
- Facilitate as much as possible the reception of interns either as part of end-of-study theses or as part of tutored projects.

The means necessary to carry out the tasks incumbent on us to achieve these objectives will be implemented on a material and human level.

Mr. (or Madam).....is designated as external coordinator of this project.

SIGNATURE of the legally authorized person:

FUNCTION :

Date :

OFFICIAL STAMP or COMPANY SEAL

VII - Opinions and Visas from Administrative and Consultative Bodies

Department Scientific Committee
Opinion and approval of the Scientific Committee: Date :
Scientific Council of Faculty (or the institute)
Opinion and approval of the Scientific Council: Date :
Dean of the faculty (or Institute Director)
Opinion and visa from the Dean or Director: Date :
Scientific Council of the University (or University Center)
Opinion and approval of the Scientific Council:

Date :

VIII - Visa of the Regional Conference

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