Kick-Off Meeting

Tallinn
18-19 February 2019

New Curricula in Precision Agriculture Using GIS Technologies and Sensing Data

CUPAGIS

University of Oran1 Ahmed Ben Bella
Fac. Life/Nature Sciences / Fac. App/Exact Sciences

Prof. Yahia Lebbah
Prof. Smain Balaska (Prof. Ahmed Hamou)
University Oran1

1

University Profile: Short History; Facts & Figures

December 1967: Creation of the University of Oran
●4 Faculties: Medicine, Law, Letter, Sciences
●1000 students, 110 Prof. (Lect., Assist., …)
2014:
●8 facs, 1 Inst., 100 Labs, +50,000 students, +4,000 staff

November 2014 birth of "University Oran1" and "University Oran2"

Geographical context :
●1,500,000 inhabitants.
●03 ports, 01 airport, 1500km of roads
●SME-SMI, petrochemical industry,
●Emerging automotive industry, Steelworks
●**3 Universities**, 2 **hospital centers,**
 Polytechnical High eng. school, **Telecom High eng. school**,
 Hydrometeorological Institute of Training and Research (IHFR) ,
 03 Higher eng. Schools, 1 Normal School,
 Agricultural Professional training centers
● 02 theaters, libraries, a museum and a large convention center.
●70 km of coast: huge tourist potential, Great fishing area.
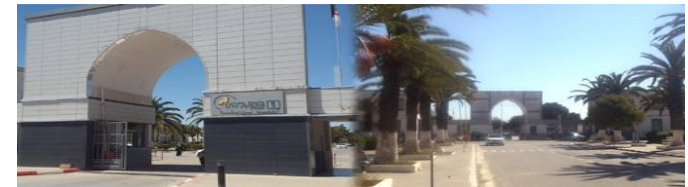
University Profile: Faculties

5 Faculties
- Exact and Applied Sciences
- Nature and Life Sciences
- Medecine
- Letters and Arts
- Human and Islamic Sciences

2 Institutes
- Translation
- Science and Applied Technology

Human resources
- 1 376 Prof.
 (Full, Assist., Lect.)
- 1 363 Administrative and
 technical staff

Students
- 20 100 Students
- 700 Foreign Students
 (+ 40 Nationalities, most from Africa)
- 3 560 Graduates in 2017

Programs
- 36 Bachelors programs
- 63 Master Programs
- 03 programs in medical sciences

University Profile: Research

68 Laboratories

1000 publications 2014-2017

1450 researchers
2500 PhD stud.
180 PhD Def./Year

University Profile: Cooperation / ...

- 20 conventions with : European universities
(50% with France)

- 05 Arab universities

- 06 Turkish universities

- 20 national institutions

- 12 Erasmus + MIC agreements

Intensive Language Teaching Center

Listening and Mediation Cell

French Digital Campus partner

Quality Assurance Unit

Faculty of Nature and Life Sciences

2 Departments: Biology, Biotechnology

10 Research Laboratories: Microbiology, Rhizobiums, Nutrition, Biotoxicology, Biodepolution, Phytoremediation, Plant improvement, Aquaculture, Bioremediation, Genetic biology, ...

Skills relevant to the projet:
  Rhizobiums, Biotoxicology, Biodepolution, Phytoremediation, Plant improvement

Pedagogical laboratories in the field of plants
Plant Ecophysiology Laboratory, **Ecological** Laboratory, **Ecopedology** Laboratory, **Plant Biochemistry** Laboratory, **Plant Cell Physiology** Laboratory, **Botanical** Laboratory.

Faculty of Exact and Applied Sciences

4 Departments: Computer Science, Mathematics, Chemistry, Physics.

18 Research Laboratories: 4 Computer Sc., 4 Mathematics, 5 Physics, 5 Chemistry

Computer Science skills relevant to the projet:
Artificial Intelligence and data science,
Networks (wireless sensors),
Image processing and computer vision, Geographical Information System,
Computer Aided Decision Making, Web Technologies,
Optimization (combinatorial and continuous)
High performance computing, Planning, Robotics, ...

BA/MA Programs Offered by Nature and Life Sciences

3 Bachelor's degrees:
- Plant Biology and Physiology
- Molecular genetics and plant breeding
- Microbial Biotechnology

4 Master's degrees:
- Plant Ecophysiology
- Molecular genetics and plant breeding
- Microbial Biotechnology
- Biotechnology and applied microbiology

BA/MA Programs Offered by Nature and Life Sciences

45 courses related to PA:
Plant nutrition
Actinorhizal symbiosis
Analyzing methods macromolecules
Biodiversity and genetic resources
Bioengineering and fermentations
Bioinformatics
Biostatistics
Biotechnological applications of mycorrhization (bio-fertilizer based on mycorrhizae)
Biotechnological applications of rhizobiology (bio-fertilizer based on BNL)
breeding method in plant breeding
Cellular communication in microbial symbiosis
Ecological environment
Ecopedology
Ecophysiology of plants
Endophytes : diversity and role
enzymatic engineering
food security and the environment
functional genomics
Genetic engineering
Gunnena and Cycas)
Hygiene and safety in microbial biotechnology
In-depth enzymology

Computer Programming
Image processing and vision
Wireless networks and remote sensing
Web technologies
GIS
Statistics and data analytics

Legumes : diversity and economic importance
Methods for evaluating the effectiveness of microbial symbiosis
Microbial symbioses and biorermediation.
Microbial taxonomy methods
Microbiological engineering
Microorganisms and the environment
Molecular biology
Mycorrhizal associations
Other symbiosis (cyanobacteria
Physiology of stress in plants
Plant Biochemical
Plant Biodiversity
Plant Physiology
Plant production
Polyphasic taxonomy of symbiotic microorganisms
Population genetics.
Principles of molecular biology techniques
Quality analysis and quality control in biotechnology
Quality control of inocula (bio-fertilizers) microbial
Rhizobian symbiosis
Signaling and microbial communications
structural genomics
Structure and physicochemistry of biological macromolecules

Université d'Oran 1
جامعة وهران 1 أحمد بن بلة

BA/MA Programs Offered by Exact and App. Sciences

Relavant Programs in Computer Science

1 Bachelor degree in Computer Science:
- Computer programming, Databases, HMI, Images
- Applied mathematics (statistics, graphs, numerical analysis, optimization)

4 Masters:
Intelligent Systems (Machine learning, Image processing, Optimization, …)
Networking (Wireless sensors, Security, Analysis, …)
Web Technologies (web semantics, GIS, ontologies, web develpment, …)
Automation and CS for industrial applications (robotics, …)

BA/MA Programs Offered by Nature and Life Sciences

	Bachelor	Master
Quantity of current educational programmes in Precision Agriculture in the University -- Quantity of selected Quantity of analyzed Quantity of selected for upgrade	0 ----------	0 ----------
Quantity of current subjects (=courses/modules) in Precision Agriculture in the University -- Quantity of selected Quantity of analyzed Quantity of selected for upgrade	10+2 ---------- 10+2 ongoing	45+5 ---------- 13+5 Ongoing

New Curricula/Modules for BA/MA Programs

Both faculties (Life and Nature Sciences, Exact and Applied Sciences**)**
●**Tentative** to propose new **Bachelor Curricula** focused on
   Precision agriculture

Faculty of Life and Nature Sciences:
●**Revisite Bachelor program / Courses on:**
Computer programming, Statistics, GIS.
●Tentative to New master on « **Biology, Agriculture, GIS and Sensing** »

Faculty of Exact and Applied Sciences:
●**Ongoing project of new Master on IOT, Data Science, GIS and Sensing**

Work Group of the Project CUPAGIS

Workgroup:

Smain Balaska (Head), Prof.: Physics, Head
Moulay Belkhodja, Prof.: Biology, Agronomy
Miloud Dahane, Lect.: Bioinformatics, Comp. Sc.
Sidi-Ahmed Chawki Lamara, Prof.: Biophysics
Yahia Lebbah, Prof.: Comp. Sc. , Web Tech, GIS.
Mohamed Sayah, PhD: Comp. Sc., Web Tech.

Faculties/chairs that will participate in the project

Vice rector for foreign relations, Smain Balaska
Vice rector for education, Ahmed Bahri
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Department Head of Biotechnology, Sid-Ahmed Chawki Lamara
Department Head of Biology, Zoheir Mellouk
Department Head of Computer Science, Mohammed Amine Mami
-
Pedagogical Head of Nature and Life Sciences, Malika Bennaceur
Pedagogical Head of Mathematics and Computer Science, Nouria Taghezout

Work Group of the Project CUPAGIS

Extended Workgroup:

Smain Balaska (Head), Prof: Physics, Head
Moulay Belkhodja, Prof: Biology, Agronomy
Noureddine Benaissa, PhD: Biology, Agronomy
Miloud Dahane, Lect.: Bioinformatics, Comp. Sc.
Sidi-Ahmed Chawki Lamara, Prof. Biophysics
Zitouni Fatima Lhouaria, PhD: Microbiolgy
Neggaz Samir, PhD: Microbiology, Biostatistics
Ameziane Hocine, Lect.: Biotechnology
Achour Asmaa, PhD: plant biology
Bidai Hamou Yasmina, PhD: plant biology
Benlaldj Amel, PhD: plant biology

Amina Kadiri, PhD: plant biology
Amouri Adel Amar, PhD: plant biology
Ighil Hariz Zohra, Prof : plant biology
Mrabet Chahinaz, Prof. : biology, molecular, bioinformatics
Hassaine Omar, PhD : biology molecular, bioinformatics
Yahia Lebbah, Prof: Comp. Sc., GIS, Web Tech.
Mohamed Sayah, PhD: Comp. Sc., Web Tech.
Mejdi Kaddour, Prof: Comp. Sc., Remote Sensing
Noureddine Aribi, PhD: Comp. Sc., Web Tech.
Réda Bentata, Lect.: Comp. Sc., Images and vision

Work Plan of the University

Complete 7/11 members of the workgroup

Revisiting courses:
1)   Continue current work on collecting all courses connected to PA
2)   Revisiting these courses with new Educational Technologies

New Bachelor on Precision Agriculture
1)   Construct « Questionnaire » about all aspects regarding this project
            (student, teachers/lecturers, professionals / graduates, …)
2)   Analyse results and design the new curricula (Bologna recommendations)
3)   …

Thank you for you attention!

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Prof Smain Balaska (Prof. Ahmed Hamou)
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