

# UNIVERSITA' DEGLI STUDI DI MILANO PROGRAMME DESCRIPTION - ACADEMIC YEAR 2021/22 MASTER DEGREE

# Agricultural Sciences (CLASSE LM-69) Enrolled from 2019/20 academic year

HEADING	
Degree classification - Denomination	LM-69 Agriculture
and code:	
Degree title:	Dottore Magistrale
Curricula currently available:	Management / Livestock systems / Precision farming
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to	120
complete programme:	
Years of course currently available:	1st , 2nd
Access procedures:	Open, subject to entry requirements
Course code:	G58

# **PERSONS/ROLES**

#### Head of Study Programme

Prof. Roberto Oberti

#### **Tutors - Faculty**

Tutor per i piani di studio:

lettera iniziale cognome studenti A-B: Prof.ssa Luisa Maria Pellegrino lettera iniziale cognome studenti C: Prof. Pietro Marino Gallina lettera iniziale cognome studenti D-E-F: Prof.ssa Alessia Perego lettera iniziale cognome studenti G-H-I-K-L: Prof.ssa Noemi Negrini lettera iniziale cognome studenti M-N: Prof. Roberto Pretolani lettera iniziale cognome studenti O-P: Prof. Aldo Calcante lettera iniziale cognome studenti Q-R: Prof.ssa Arianna Facchi lettera iniziale cognome studenti S-T: Prof. Salvatore Roberto Pilu lettera iniziale cognome studenti U-V-Z: Prof. Luca Rapetti

#### Degree Course website

https://scienzeagrarie-lm.cdl.unimi.it/

Phone 0250316867 Email: didattica.disaa@unimi.it

via Celoria 2 - Milano Città Studi Phone 0250316511-0250316512 Lunedì, mercoledì e venerdì dalle 10.30 alle 12.30; martedì e giovedì dalle 14 alle 16. Email: didattica.agraria@unimi.it

via Celoria 18 - Milano Città Studi Phone 0250325032 https://www.unimi.it/it/node/360 https://www.unimi.it/it/node/359

# **CHARACTERISTICS OF DEGREE PROGRAMME**

#### General and specific learning objectives

The master degree in Agricultural Sciences, which belongs to the class L-69 "Agricultural Sciences and Technologies", aims at training master graduates with a high skills based on the most recent and advanced knowledge in the different agrarian sectors. The skills acquired will permit the graduate to realize the importance of a modern agriculture and of its role of combining the traditional mission of supplying food, with that of safeguarding the territory and producing safe and sustainable food. The master graduate will have the cultural, scientific and technical flexibility, gained through a multi-disciplinary/integrated approach to the different aspects, necessary to check and manage the ongoing adaptation of the agricultural productive system to the new needs of the complex and heterogeneous European society.

Considering the actual evolution of the most advanced agricultural areas in Italy and in Europe, the learning structure of the degree course is focused on three specific educational areas: 1) farm management and its links with the market, the production chains, and the territory and the environment involved; 2) livestock production, the livestock chains and the related relations with the environment sustainability and the food safety; 3) precision farming systems and methods and management of the digital technologies associated.

Common learning objectives of the master degree are a deepening of the skills and knowledge on agriculture and its management both at farm and at territory level, and the acquisition of the ability of planning, implementing and manage the production processes and the technical innovations in a view of a safeguard of the environment and the territory.

#### **Expected learning outcomes**

Master graduates in Agricultural Sciences will be able to plan, manage and audit environmentally friendly agricultural systems and processes; particularly, the environmental sustainability will take into account soil defense and protection by means of traditional and innovative technologies. The graduate will have the skill to: use the techniques (also the lab ones) to check the quality of the different crop-livestock production chains; plan and manage the technical innovations of the agricultural productions, with particular reference to the most suitable instrument for the defense, the conservation and the management of the different commodities and their marketing; utilize the tools for an economic evaluation of the enterprise competitiveness, the choices in agricultural policy and rural appraisals; utilize the informatics technologies for monitoring and modelling, also in view of implementing development projects; work in autonomy, with projects and structure charge; fluent written and oral use of a European language, besides Italian, with a knowledge of the specific agriculture technical words.

#### Professional profile and employment opportunities

The profile of the master graduate in Agricultural Sciences is an upgrade of that acquainted by the bachelor graduate in Agricultural Sciences and Technologies. He/she will be able to perform all the activities foreseen by the Professional Register of the Agronomists. The knowledge and the skills provided will enable the graduate in Agricultural Sciences to work, at planning and direction level, in the following sectors: crop-livestock productions, organization of the extension services, public and private administration, research and teaching; farm economic and administrative direction; integrated rural development projects; planning livestock structures/buildings; monitoring and safeguard of the rural territory; choice and set up of technical production plants; machine, plant and structure check and safety; planning agriculture mechanization and water management activities in the territory energy management in renewable energy systems; practices for environmental protection and sustainable agriculture; commercialization and marketing of agriculture commodities.

Particularly, the master graduate will have the following job opportunities, depending on the curriculum chosen within the degree course

Management – Managerial functions of direction and coordination: in farms and agricultural enterprises; in the agricultural sector of public institutions; in technical and commercial agricultural extension services. Moreover: private counselling in agricultural sectors.

Livestock systems - Managerial functions of direction and coordination: in livestock farms and agricultural enterprises linked to the livestock sector; in the livestock sector of public institutions; in technical and commercial livestock extension services. Moreover: private counselling in livestock sectors; research and development in private enterprises and research centres.

Precision farming – technical/professional services to support agricultural production; ICT (Information and communications technology) enterprises for agriculture (informatics, modelling, remote sensing, etc.); high innovation startup for the agro-food sys; industry of agriculture precision technologies and farm machineries; technical and commercial support to farm adopting PF systems.

#### Notes

Proficiency in English at a B1 level or higher, under to the Common European Framework of Reference for Languages (CEFR), is required for admission.

The B1-level requirement will be ascertained by the University Language Centre (SLAM) upon admission as follows:

- By a language certification at or above B1, obtained no more than 3 years earlier. For the list of language certifications recognized by the University please review: https://www.unimi.it/en/study/language-proficiency/placement-tests-and-english-courses/english-entry-tests. The certification must be uploaded when submitting the online application;

- By the English level achieved during a Bachelor's degree programme through SLAM courses and tests. The certificates must be less than four years old, and will be assessed administratively, without the applicant having to attach any certificates;

- By the entrance test, which will be delivered by the SLAM on 22 September 2021 and on 12 November 2021, only for students who have applied for admission at a later date.

All those who fail to submit a valid certificate or do not meet the required proficiency level will be invited to take the test through the admission procedure.

Candidates who do not sit or pass the entrance test will have until 31 December 2021 to obtain and submit one of the recognized certifications to the SLAM.

Students who do not meet the requirement by 31 December will not be admitted to the Master's degree programme and cannot sit further tests.

In order to obtain their degree, students must be proficient in English at a B2 level. This proficiency level may be certified as follows:

By a language certification at a B2 level or higher, as submitted during the admission procedure;

By the entrance test (B2 level or higher);

By a Placement Test, which is delivered by the University Language Centre (SLAM) during year I only, from October to January (B2 or higher).

All students who do not have a B2 level or higher will be required to attend a B2-level English course, which will be delivered by the SLAM, in the second semester of year I only.

Those who do not attend the course or do not pass the end-of-course test within 6 attempts must obtain a language certification by graduation.

### EXPERIENCE OF STUDY ABROAD AS PART OF THE TRAINING PROGRAM

The University of Milan supports international mobility by providing its students with the opportunity to spend study and internship periods abroad. It is a unique chance to enrich your educational path in a new exciting environment.

The agreements entered into by the University with over 300 universities from the 27 EU member countries and other Extra-EU countries under the European Erasmus+ programme allow regularly enrolled students to carry out part of their studies at one of the partner universities or to undertake internships at companies, training and research centres and other organizations.

Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

#### Study and internships abroad

The Course of study in Agricultural Sciences gives many opportunities for stages abroad mainly through the Erasmus+ programme. About 30 foreign Universities of the EU are involved in this students exchange. The areas of study which can be followed by the students abroad are almost all those included in this course of study. In general, students who make a stage abroad attend local courses or participate in research for the preparation of their thesis. The learning agreement is outlined in collaboration with the person in charge for the Erasmus of the degree program, as regards both the choice of courses and the organization of the internship at the partner university. Students must obtain the formal approval of the examinations that they intend to carry out at the host university from professors who hold equivalent or similar teachings at the University of Milan before completing the learning agreement. As regards experimental activities abroad, which can constitute part or the entire program of the internship, a letter of agreement from a professor of the partner university is required, along with the formal approval on the objectives, on the program and on the term of the internship by a professor of the degree program, who will also act as supervisor. Other possibilities exist in terms of cultural exchange with non EU universities (in China, Japan, Latin America) not involved in the Erasmus programme.

#### How to participate in Erasmus mobility programs

How to participate in Erasmus+ mobility programmes

The students of the University of Milan can participate in mobility programmes, through a public selection procedure. Ad hoc commissions will evaluate:

- Academic career
- the candidate's proposed study programme abroad
- his/her foreign language proficiency
- the reasons behind his/her application

Call for applications and informative meetings

The public selection generally begins around February each year with the publication of a call for applications specifying the destinations, with the respective programme duration (from 2/3 to 12 months), requirements and online application deadline.

Every year, before the deadline for the call, the University organizes informative meetings to illustrate opportunities and rules for participation to students.

Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which is supplemented by the University funding for disadvantaged students.

Language courses

Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University.

Learn more at https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus

For assistance, please contact: International Mobility Office Via Santa Sofia 9 (second floor) Tel. 02 503 13501-12589-13495-13502 Contacts: InformaStudenti mobility.out@unimi.it Student Desk booking through InformaStudenti

# 1st COURSE YEAR Core/compulsory courses/activities common to all curricula

Learning activity		Ects	Sector
Agricultural policy and rural appraisal		14	AGR/01
Cropping systems		8	AGR/02
English proficiency B2 (3 ECTS)		3	ND
Experimental methodologies in agriculture		6	AGR/17
	Total compulsory credits	31	
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Further elective courses common to all curricula			
Advanced dairy technologies		6	AGR/15
Agri-food Marketing		6	AGR/01
Economics of innovation in agriculture		6	AGR/01
Economics of natural resources		6	AGR/01
Energy for Agriculture		6	AGR/09
Field applications of precision agriculture		8	AGR/09, AGR/12
GIS (Geographical Information System) for rural landscape		6	AGR/10
ntegrated design and re-use of rural buildings		6	AGR/10
nternational cooperation and crop-livestock systems		6	AGR/18
lant disease and pest management		6	AGR/11, AGR/12
Plant protection management		6	AGR/12
Precision irrigation		5	AGR/08
Precision livestock feeding		6	AGR/18
Production and quality of fish products		6	AGR/20
Production, reproduction and animal health: monitoring and management		6	AGR/19
Protected cultivation systems		6	AGR/04
Sensors and automation for precision livestock		6	AGR/09
Simulation modelling for precision agriculture		5	AGR/02
Soil bioengineering		6	AGR/08
Survey, map drawing and materials for green areas		6	AGR/10
Free growing strategies		6	AGR/03
Animal morphology and physiology (upgrade)		4	VET/01
Cytogenetic of livestock		4	AGR/17
Environmental impact of agro-food production systems		4	AGR/19, AGR/09
Planning and realization of urban green spaces		6	AGR/03
Precision dairy farming		3	AGR/19, AGR/10
Quality and genuineness of milk and dairy products		6	AGR/15
Ree RuMeN - Precision Feeding for the Environment: Rumen, Methane, and Nutrition		3	AGR/18
Free propagation and nursery industry		6	AGR/03
End of course requirements common to all curricula			
Final exam		22	NA
	Total compulsory credits	22	

# **ACTIVE CURRICULA LIST**

Management Course years currently available: 1st, 2nd Livestock systems Course years currently available: 1st, 2nd Precision farming Course years currently available: 1st, 2nd

#### CURRICULUM: [G58-E] Management

1st COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Management			
Learning activity		Ects	Sector
Hydrology and water management for agriculture		8	AGR/08
Landscape planning		8	AGR/10
Livestock, environment and food safety		8	AGR/19, AGR/18
Mechanization of agricultural processes		8	AGR/09
	Total compulsory credits	32	
2nd COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Management			
Learning activity		Ects	Sector
Economics of agricultural markets			AGR/01
	Total compulsory credits	8	

# CURRICULUM: [G58-F] Livestock systems

1st COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Livestock systems			
Learning activity		Ects	Sector
Equipment, plants and machinery for livestock production		8	AGR/09, AGR/10
Genetics and animal reproduction		10	(6) AGR/17, (4) VET/01
Livestock, environment and food safety		8	AGR/19, AGR/18
Rabbit, poultry and aquaculture productions		8	AGR/20
	Total compulsory credits	34	
2nd COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Livestock systems			

Learning activity		Ects	Sector
Feed formulation and production Technologies		6	AGR/18
	Total compulsory credits	6	

# CURRICULUM: [G58-G] Precision farming

1st COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Precision farming			
Learning activity		Ects	Sector
Geomatics in agriculture		8	AGR/08, ICAR/06
Hydrology and irrigation systems for agriculture		8	AGR/08
Mechanization of agricultural processes		8	AGR/09
	Total compulsory credits	24	
2nd COURSE YEAR Core/compulsory courses/activities Curriculum-specific features Precision farming			
Learning activity		Ects	Sector
Machinery, plants and equipment for precision farming		8	AGR/09, AGR/10
Precision farming		8	AGR/19, AGR/02
	Total compulsory credits	16	