UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2024/25
SINGLE-CYCLE DEGREE
Pharmacy (Classe LM-13)
Enrolled from academic year 2023/24

HEADING	
Degree classification - Denomination and code:	LM-13. Pharmacy and industrial pharmacy
Degree title:	Dottore Magistrale
Length of course:	5 years
Total number of credits required to complete programme:	300
Years of course currently available:	1st , 2nd
Access procedures:	Cap on student, student selection based on entrance test
Course code:	E26

PERSONS/ROLES

Head of Interdepartmental Study Programme

Prof. Alessandro Pedretti - Via Luigi Mangiagalli 25, Milano

Tutors - Faculty

Tutor per l'orientamento (suddivisione studenti in base a cognome):
Primo biennio
A-C Prof. Valerio Magnaghi
D-F Dott.ssa Silvia Rosa Araneo
G-L Prof.ssa Valeria Crippa
M-R Prof. Alessandro Pedretti
S-Z Prof.ssa Roberta Manuela Moretti
Secondo triennio
A-D Prof. Stefano Bellosta
E-H Dott.ssa Alessandra Maria Colciago
I-M Prof.ssa Gabriella Roda
N-Q Prof.ssa Marina Montagnani Marelli
R-Z Prof. Angelo Sala

Tutor per la mobilità internazionale e l'Erasmus:
Prof.ssa Stefania Maria Ceruti

Commissione per trasferimenti/riconoscimento crediti:
Prof.ssa Sara Pellegrino (Presidente)
Dott.ssa Silvia Rosa Araneo
Prof.ssa Irma Colombo
Dott.ssa Arianna Gelain
Prof.ssa Alessandra Maroni

Tutor per tirocinio professionale in Farmacia:
Coordinatore: Prof.ssa Paola Minghetti
Tutor accademici (suddivisione studenti in base a cognome):
Silvia Rosa Araneo (A, D)
Chiara Grazia Milena Gennari (B)
Irma Colombo (C)
Carla Perego (F, L)
Stefania Villa (E, G, H, I)
Luca Palugan (J, K, L, N, V, Z)
Alessandro Pedretti (M)
Chiara Maria Di Lorenzo (O, P, Q)
Alessandra Maria Colciago (R, T, U)
Paola Conti (S, W, X, Y)

Degree Course website

https://farmacia-cu.cdl.unimi.it/it

Email: farmacia.rappresentantistudenti@unimi.it

Deputy Chair of the Interdepartmental Academic Board: prof.ssa Irma Colombo

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Pharmacy course management

Via Golgi 19 - Edificio 1, ingresso D - 20133 Milano lun, merc, ven 9:30-11:30; mar e gio 13:30-15:30
https://informastudenti.unimi.it/saw/ess?AUTH=SAML

Representative for disability services and specific learning disabilities, workers Prof.ssa Irma Colombo

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Student Desks

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Transfer Evaluation Coordinator Prof.ssa Sara Pellegrino

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CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The Master's degree in Pharmacy aims to give students a theoretical and practical training in the fields of biology, microbiology, physiology, biochemistry and biomedicine, chemistry and pharmacy, pharmacology and toxicology, pharmaceutical technology, legislation and professional ethics. This will enable students to practise as pharmacists and hold high-profile positions related to pharmaceutical, diagnostics and health products. The Master's degree in Pharmacy provides students with cutting-edge scientific expertise in the health sector, to prepare future pharmaceutical experts and train them in the therapeutic use of drugs. These experts should contribute to reaching the goals set by the Italian Health Service to meet the changing healthcare needs of our society. Graduate pharmacists will be able to operate in accordance with the objectives of public health, advising healthy customers for prevention purposes and providing tailored assistance to chronic and non-chronic patients to encourage adherence to pharmacological therapies.

Pursuant to articles 1 and 3 of Law no.163 dated 8 November 2021, after passing the final exam of the single-cycle Master's degree in Pharmacy (degree class LM-13), graduates are qualified to work as pharmacists.

In order to reach the above-mentioned goals, the Master's degree in Pharmacy will provide students with:

a) a robust knowledge of the main scientific subjects (physics, chemistry, biology, microbiology, medicine), enabling them to adopt a scientific approach to solve problems related to the profession of pharmacist;

b) an in-depth understanding of the composition of drugs, as well as their chemical, pharmaceutical and technological features, therapeutic efficacy, contra-indications and use, applicable legislation and any other guidelines on the matter;

c) the ability to apply the acquired knowledge to the dosage of drugs, their identification with purity tests and the preparation of compounds;

d) adequate knowledge of biochemistry, physiology, pathology, endocrinology and nutrition, to help prevent diseases and support the patient's compliance with the medical treatment;

e) adequate knowledge of pharmacogenetics, pharmacoepidemiology, pharmacovigilance, telehealth and any other aspect contributing to patient-tailored pharmacological therapies, which are becoming increasingly important for a correct use of medicines;

f) adequate medical knowledge with regard to patient's anamnesis, first-instance tests, screening and prevention campaigns and other services offered by pharmacies, which are becoming truly multifunctional in order to respond to the growing healthcare needs of our society, in line with the new concept of 'Pharmacy of Services';

g) knowledge of the legal and ethical aspects and responsibilities related to the job, to practise the profession and protect citizens' health;

h) knowledge of the fundamentals of economics, management and communication applied to the health sector, and particularly the pharmaceutical sector;

i) the learning skills needed to attend advanced courses, postgraduate schools and PhD programmes in the pharmaceutical and pharmacological area.

Expected learning outcomes

Knowledge and understanding

The Master's degree in Pharmacy aims to give students a theoretical and practical training in the fields of biology, microbiology, chemistry, biochemistry, pharmacy, technology, pathophysiology, pharmacology and toxicology, as well as pharmaceutical legislation. Through this multidisciplinary programme, students will become familiar with the whole process behind pharmaceutical products, from drug design to the production, marketing, use and control of medicines, medical

devices and health products (cosmetics, nutritional supplements, common food or food for special medical purposes), in accordance with current regulations. To this end, training activities include single-module and multiple-module (integrated) courses consisting of theoretical classes and laboratory exercises, and a mandatory professional internship with evaluation test. The educational skills provided by each training activity are assessed by way of oral and written exams and other types of tests, as well as during the preparation and discussion of the thesis work.

Applying knowledge and understanding
Graduates in Pharmacy will be able to apply the scientific expertise acquired to the following activities: dosage of drugs; identification of drugs with purity tests; preparation of compounds; quality control of drugs; therapeutic treatments. Graduates in Pharmacy will be able to develop connections between the patient, the doctor and public health facilities. They will support healthy customers for prevention purposes and provide tailored assistance to chronic and non-chronic patients to encourage adherence to pharmacological therapies.
Graduates in Pharmacy will also acquire the ability to: interact with experts from certain applied sectors, understanding the specific needs of the areas where they will operate and proposing effective solutions; work in interdisciplinary groups and develop synergies with experts from different sectors; keep up to date on the development in the pharmaceutical sector.
These skills will be acquired during core and supplementary courses and the professional internship, and will be assessed by way of oral and written exams or other types of tests, as well as during the preparation and discussion of the final thesis.
Innovative teaching models will be implemented to deliver some courses of this degree programme, with a view to developing 'learning by doing' skills by adopting a student-centred approach.

Making judgements
Students' ability to make judgements is gradually acquired through active participation in lectures, practical exercises, laboratories and supplementary activities, and assessed through the above-mentioned tests and exams in the frame of each course. This ability is also trained during the professional internship and related evaluation test, and in the framework of the experimental, semi-experimental or non-experimental final thesis. The thesis work is a responsibility of each student, who will gather, choose and develop information from different sources, and critically examine documents, data and outcomes on his/her own (with the guidance of the supervisor). The thesis will be presented during the final exam.
The ability to make judgement is essential to train graduates to manage the dispensing of drugs and support patients during their therapeutic treatment, also with regard to the use of self-medication and health products.

Communication skills
Communication skills, along with summary skills, contribute to the final mark given for oral and written mid-course and end-of-course exams. In particular, communication skills will be assessed at the end of the study programme, when students present their final thesis. English proficiency represents a further aspect of students' communication skills.
Communication skills play a key role for pharmacists, as the job requires the ability to interact with customers by providing patient-tailored services both in terms of prevention and effective communication of test results.

Learning skills
The master's degree in Pharmacy also aims to provide students with learning skills, that is the ability to study on their own. This will enable them to work in interdisciplinary teams comprising experts from different sectors, create synergies with other healthcare professions and undertake other academic training, e.g. advanced courses, PhD programmes, postgraduate schools, second-level vocational master programmes and refresher courses.
Learning skills will be acquired throughout the academic programme, by actively participating in the mandatory and supplementary courses, and in the activities of the professional internship, as well as by preparing the thesis. For such activity, students will analyse in depth certain issues related to pharmaceutical products, also using IT systems and databases.
Learning skills are assessed by way of oral and written exams in the frame of each course, through the professional internship and the related evaluation test, as well as during the final exam.

Professional profile and employment opportunities

Pharmacist responsible for dispensing drugs and health products
Job function: graduates in Pharmacy will be qualified for the preparation, control, storage and dispensing of drugs in pharmacies open to the public, as well as in commercial establishments where no medical prescription is needed (parapharmacies). They will also be qualified for dispensing health products in pharmacies open to the public, controlling expenditures and managing medical devices in hospital pharmacies and Local Health Units (ASL).
Professional skills: interacting with the patient to promote an appropriate use of prescription and non-prescription drugs and other health products; identifying the problems related to the use of drugs; performing new tasks as provided for by the laws and regulations on the 'Pharmacy of Services'; selecting the best drugs on the basis of risk-benefit and cost-benefit assessments; responding to citizens' therapeutic needs.
Employment opportunities: public and private pharmacies open to the public; commercial establishments for the sale of drugs that do not require medical prescription (parapharmacies); health facilities of the Italian Health Service (hospital pharmacies and ASLs).

Pharmacist operating in the intermediate distribution
Job function: graduates in Pharmacy will be qualified for the storage and distribution of drugs to pharmacies open to the public and hospital pharmacies.

Professional skills: stock management
Employment opportunities: intermediate distributors (wholesalers and depositories)

Pharmacist for scientific dissemination
Job function: graduates in Pharmacy possess adequate knowledge to prepare scientific and educational materials for healthcare professionals, researchers and graduates in chemical and pharmaceutical sciences, as well as to promote health education among citizens.
Professional skills: pharmacological, toxicological, chemical, biological, technological and microbiological expertise.
Employment opportunities: scientific and educational journals, radio and television. Graduates in Pharmacy may also perform consultancy services, as well as dissemination and promotional activities regarding industrial medications and medical devices, for healthcare professionals (general practitioners or medical specialists) operating in university clinics, hospitals, nursing homes, dispensaries and other health facilities.

Pharmacist working in the industrial sector and for regulatory agencies
Job function: graduates in Pharmacy are equipped to: work in R&D, production, control, storage and conservation of drugs and other regulatory activities; draft and assess the dossier for marketing authorisation; operate in the distribution of active substances and finished products, such as drugs, medical devices, in vitro diagnostic medical devices (IVD), disinfectants and sanitizers, food supplements, dietetic products, cosmetics); perform pharmacovigilance activities and promote scientific dissemination.
Professional skills: pharmacological, toxicological, chemical, biological, microbiological, technological and regulatory expertise.
Employment opportunities: chemical, pharmaceutical, cosmetic and food industries, medical device industry and pharmaceutical consulting firms.

Initial knowledge required

Qualifications and knowledge required for admission
Admission to the single-cycle Master's degree programme in Pharmacy is capped pursuant to Law no. 264 of 2 August 1999. Applicants to the single-cycle Master's degree programme in Pharmacy must hold a high-school diploma or equivalent foreign qualification, and have adequate background knowledge. In particular, applicants must be proficient in oral and written Italian, demonstrate logical reasoning skills and know the basics of mathematics, physics, chemistry and biology, as envisaged by the high-school syllabus.
Admission assessment
To gain entry to Year I of the single-cycle Master's degree programme in Pharmacy, candidates must take the TOLC-F online test by CISIA (http://www.cisiaonline.it/), which is aimed at assessing the aptitude of candidates for this degree programme, and whether they have the necessary background knowledge. The TOLC-F test consists of five sections with multiple-choice questions to ascertain the candidate’s knowledge of Biology, Chemistry, Mathematics, Physics, Logic and English (optional), as provided by high school. The schedule of TOLC-F tests held by our and other Italian universities is available at https://tolc.cisiaonline.it/calendario.php. Deadlines and admission procedures can be found in the call for applications available on the University website at https://farmacia-cu.cdl.unimi.it/it/iscriversi
The educational background required to attend this degree programme is assessed through the admission test. In order to meet the background knowledge requirements, candidates must achieve, in the admission test, the minimum passing score set out in the call for applications. Admission is based on merit ranking, up to the number of places available.
Waivers from test requirements and admission to years subsequent to Year I are governed by the rules laid down in the call for applications.
For more information: https://farmacia-cu.cdl.unimi.it/it/iscriversi.
Additional learning requirements (OFA) and remedial activities
Students who did not achieve at least 4 points in the mathematics module of the TOLC-F test will have to fulfil additional learning requirements (OFAs). For this purpose, they will have to attend remedial activities (online exercises, meetings with the tutor) organised by the University and take a remedial test to prove they have filled their gaps by the end of Year I. Students with OFAs may not take the Principles of Mathematics and Physics with Elements of Biostatistics and Computer Science exam before fulfilling said requirements.

For more information: https://matematica.cdl.unimi.it/it/studiare/le-matricole

Internship criteria

Pursuant to Interministerial Decree no. 651/2022 and in accordance with European directives, commencing Year IV students must undertake a professional internship, followed by an evaluation test, at a pharmacy which is open to the public and/or a hospital pharmacy that is under the supervision of the pharmaceutical department. During their internship, students will participate in the activities of the host pharmacy, to acquire the specific know-how and professional skills needed to work as pharmacists within the Italian health service.
In accordance with Article 44(2)(b) of Directive 2005/36/EC, professional internships have a total duration of 6 months and require a maximum of 40 working hours per week, for a total of 900 hours. At least 50 percent of the internship must be served in a pharmacy which is open to the public. The internship is worth 30 university credits (CFU).
Internships may be served with up to three different host organisations and may be split into separate blocks (each of at least one month). Internships may also be served abroad, subject to the University’s consent. The University will first check that the teaching content complies with current regulations, after having consulted with the local professional association.

In order to start their professional internship, students must: be enrolled in Year IV of this degree programme; have passed all the exams graded on a scale of 30 of the previous three years (particularly Medicinal and Toxicological Chemistry I, Pharmacology and Pharmacotherapy, Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology); have earned at least 160 CFU; have obtained the authorisation of the head of the host pharmacy and/or hospital pharmacy or the local pharmaceutical services, as well as of the professional tutor and the academic tutor, to start the internship; have collected the "Intern's diary" (Diario del tirocinante) from the University, which must be in the form approved by the Federation of Italian Pharmacists' Association, as agreed with the Conference of Italian University Rectors (CRUI).

For more information on Pharmacy internships: https://www.unimi.it/it/node/12683/.

Degree programme final exams

Pursuant to articles 1 and 3 of Law no. 163/2021, to obtain their Master's degree students must pass a Practical Evaluation Test (PPV) which tests the professional skills acquired during the student's pharmacy internship and the level of clinical competency required to qualify as a pharmacist. The PPV precedes the final exam, for which students have to write, present and discuss a thesis work based on an experimental, semi-experimental or non-experimental (bibliographic) research project. The aim of the final thesis, which is worth 15 CFU, is to prove that the student is able to work on his/her own (with the guidance of the supervisor), has acquired the skills needed to develop his/her project, and has a deep understanding of the topics studied. Experimental or semi-experimental research is carried out at the University laboratories or at public or private entities with which the University has signed specific agreements, whereas non-experimental research consists in the collection and analysis of bibliographic sources or other data regarding the cultural and professional contents of the degree programme.
After passing the final exam, the candidate will be awarded a Master's degree in Pharmacy and will be qualified to practise as a pharmacist.

Campus

Milan

Notes

For-credit assessment B2
In order to obtain their degree, students must be proficient in English at a B2 level under the Common European Framework of Reference for Languages (CEFR). This proficiency level may be certified as follows:
- By submitting a language certificate attesting B2 or higher level in English and issued no more than three years before the date of submission. You will find the list of language certificates recognized by the University at: https://www.unimi.it/en/node/39322). The certificate must be uploaded during the enrolment procedure, or subsequently to the portal http://studente.unimi.it/uploadCertificazioniLingue;
- By taking a placement test offered by the University Language Centre (SLAM) between October and January of the first year. Students who fail the test will be required to take a SLAM course.
The placement test is mandatory for all those who do not hold a valid certificate attesting to B2 or higher level.

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 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.

How to participate in Erasmus mobility programs

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 for Erasmus+ mobility for study generally begins around February each year with the publication of a call for applications specifying destinations and requirements. Regarding the Erasmus+ Mobility for Traineeship, the University of Milan usually publishes two calls a year enabling students to choose a destination defined by an inter-institutional agreement or to find a traineeship position on their own.
The University organizes informative meetings to illustrate mobility opportunities and rules for participation.
Erasmus+ scholarship
The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which may be 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 Language Centre (SLAM).
https://www.unimi.it/en/node/8/
Learn more at https://www.unimi.it/en/node/274/
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

Learning activity	Ects	Sector
Analytical Chemistry	6	CHIM/01
Biology and basic genetics	7	BIO/13
English proficiency B2 (2 ECTS)	2	ND
General Inorganic Chemistry and Stoichiometry	8	CHIM/03
Human Anatomy	6	BIO/16
Plant biology and Pharmaceutical botany	7	BIO/15
Principles of mathematics and physics with elements of biostatistics and computer science	10	(5) FIS/07, (1) INF/01, (4) MAT/05
Total compulsory credits	46	

2nd COURSE YEAR Core/compulsory courses/activities common

Learning activity	Ects	Sector
Applied Microbiology, Virology and Principles of Public Health	10	BIO/19
General Biochemistry	8	BIO/10
General Pharmacology And Pharmacognosy	10	BIO/14
Human Physiology	11	BIO/09
Organic Chemistry	10	CHIM/06
Qualitative inorganic analysis according to Pharmacopoeia and Laboratory of qualitative inorganic analysis	6	CHIM/08
Total compulsory credits	55	

3rd COURSE YEAR (available as of academic year 2025/26) Core/compulsory courses/activities common

Learning activity	Ects	Sector
Functional foods, dietotherapics and food supplements	9	(4) CHIM/10, (3) BIO/14, (2) CHIM/08
General Pathology and Pathophysiology	11	MED/04
Medicinal and Toxicological Chemistry I	10	CHIM/08
Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology	12	CHIM/09
Pharmacology and Pharmacotherapy	10	BIO/14
Quantitative analysis according to Pharmacopoeia and Laboratory of quantitative analysis	8	CHIM/08
Systematic and Nutritional Biochemistry	6	BIO/10
Total compulsory credits	66	

4th COURSE YEAR (available as of academic year 2026/27) Core/compulsory courses/activities common

Learning activity	Ects	Sector
Analytical Methodologies for Pharmacy and Laboratory of Analytical Methodologies	10	CHIM/08
Biotechnological drugs and chemotherapeutics	8	BIO/14
Gender medicine and pharmacotherapy	6	(3) MED/13, (3) BIO/14
Medicinal and Toxicological Chemistry II	10	CHIM/08
Pharmaceutical Legislation, Professional Ethics and Pharmacy Management, with Laboratory of Compounding	9	(3) SECS-P/07, (6) CHIM/09
Toxicology and pharmacovigilance	10	BIO/14
Total compulsory credits	53	

Elective courses

During Year IV, students are required to earn 8 CFU for elective activities. These can be freely chosen from those offered by the University, provided that they are coherent with the study programme and have been approved by the Interdepartmental Academic Board To this end, the degree programme offers some ad-hoc courses that are worth 8 CFUs each. Third-year students may choose one of the courses listed below, by following the instructions which are published every year, between June and July, on the website of the degree programme. Courses will be launched only if they are chosen by a minimum of 6 students. Elective courses are graded on a scale of 30. Students are required to check the prerequisites of elective courses in the relevant table. Students who wish to undertake an experimental thesis may choose “Experimental laboratory” as their elective course to earn 8 CFU. This option is not mandatory.

Drug Development and Scientific Communication	8	BIO/14
Drugs and innovation	8	BIO/14

Experimental laboratory	8	NA
Hormones/phytohormones and Metabolic Diseases	8	MED/13
Pharmaceutical and Health Products Market	8	CHIM/09
Phytopharmacy	8	BIO/14
Skincare and Makeup Cosmetics	8	CHIM/09

5th COURSE YEAR (available as of academic year 2027/28) Core/compulsory courses/activities common

Learning activity	Ects	Sector
Advanced Drug Delivery Systems	6	CHIM/09
Final exam	15	NA
Medical Devices	6	(4) CHIM/09, (2) CHIM/08
Personalized Pharmacotherapy	7	BIO/14
Pharmacy internship with evaluation test	30	NA
Pharmacy Services	8	(2) MED/09, (3) MED/42, (3) BIO/12
Total compulsory credits	72	

COURSE PROGRESSION REQUIREMENTS

Please note that attendance is mandatory for laboratories and registration is required.
For information on how and when to register for laboratories, please check the website of the degree programme at https://farmacia-cu.cdl.unimi.it/it and the Ariel websites of the relevant laboratory instructors.

ADMISSION TO LABORATORIES
Students may attend the LABORATORY OF QUALITATIVE INORGANIC ANALYSIS only if they pass the General inorganic chemistry and stoichiometry exam by 28 February of the academic year during which they wish to attend the laboratory.
Students may attend the LABORATORY OF QUANTITATIVE ANALYSIS only if they have attended the Laboratory of qualitative inorganic analysis. As the Laboratory of quantitative analysis according to Pharmacopoeia is scheduled in the second semester, students may attend the preparatory laboratory in the first semester of the same academic year.
Students may attend the LABORATORY OF ANALYTICAL METHODOLOGIES only if they pass the Medicinal and toxicological chemistry I exam by 31 January of the academic year during which they wish to attend the laboratory, and provided they have already attended the Laboratory of quantitative analysis (even if they have not passed the exam yet).
Students may attend the LABORATORY OF PHARMACEUTICAL TECHNOLOGY only if they have attended the Laboratory of qualitative inorganic analysis.
Students may attend the LABORATORY OF COMPOUNDING only if they have attended the Laboratory of pharmaceutical technology.

EXAM PREREQUISITES
Exam prerequisites are set in order to ensure that students progress gradually in their studies. Students may sit for the exams of the courses listed in the left column of the table below only if they have passed the exams of the preparatory courses listed in the right column.

REMOVAL OF PREREQUISITES - If a prerequisite listed in one of the programme descriptions of the previous years is not included in the current programme description, this removal applies to all students regardless of their year of enrolment.
ADDITION OF PREREQUISITES - Should the programme description add new prerequisites, students will have to meet such prerequisites only if they are specified in the programme description of the academic year prior to the one during which the exam is taken.

Learning activity	Prescribed foundation courses	O/S
Human Physiology	Principles of mathematics and physics with elements of biostatistics and computer science	Core/compulsory
	Human Anatomy	Core/compulsory
	Biology and basic genetics	Core/compulsory
Applied Microbiology, Virology and Principles of Public Health	Human Anatomy	Core/compulsory
	Biology and basic genetics	Core/compulsory
General Biochemistry	Biology and basic genetics	Core/compulsory
	General Inorganic Chemistry and Stoichiometry	Core/compulsory
Functional foods, dietotherapics and food supplements	Human Physiology	Core/compulsory
	General Biochemistry	Core/compulsory
	General Pharmacology And Pharmacognosy	Core/compulsory
Medicinal and Toxicological Chemistry I	Organic Chemistry	Core/compulsory
General Pathology and Pathophysiology	Human Physiology	Core/compulsory
	General Biochemistry	Core/compulsory
Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology	Human Physiology	Core/compulsory
	General Pharmacology And Pharmacognosy	Core/compulsory
Systematic and Nutritional Biochemistry	General Biochemistry	Core/compulsory

Quantitative analysis according to Pharmacopoeia and Laboratory of quantitative analysis	Analytical Chemistry	Core/compulsory
	Qualitative inorganic analysis according to Pharmacopoeia and Laboratory of qualitative inorganic analysis	Core/compulsory
	Organic Chemistry	Core/compulsory
Pharmacology and Pharmacotherapy	General Pharmacology And Pharmacognosy	Core/compulsory
Medicinal and Toxicological Chemistry II	Medicinal and Toxicological Chemistry I	Core/compulsory
Analytical Methodologies for Pharmacy and Laboratory of Analytical Methodologies	Medicinal and Toxicological Chemistry I	Core/compulsory
	Quantitative analysis according to Pharmacopoeia and Laboratory of quantitative analysis	Core/compulsory
Pharmaceutical Legislation, Professional Ethics and Pharmacy Management, with Laboratory of Compounding	Medicinal and Toxicological Chemistry I	Core/compulsory
	Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology	Core/compulsory
	Pharmacology and Pharmacotherapy	Core/compulsory
Biotechnological drugs and chemotherapeutics	Applied Microbiology, Virology and Principles of Public Health	Core/compulsory
	Pharmacology and Pharmacotherapy	Core/compulsory
Gender medicine and pharmacotherapy	Pharmacology and Pharmacotherapy	Core/compulsory
Toxicology and pharmacovigilance	Pharmacology and Pharmacotherapy	Core/compulsory
Drugs and innovation	General Pharmacology And Pharmacognosy	Core/compulsory
Phytopharmacy	Pharmacology and Pharmacotherapy	Core/compulsory
Pharmaceutical and Health Products Market	Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology	Core/compulsory
Hormones/phytohormones and Metabolic Diseases	General Pathology and Pathophysiology	Core/compulsory
Drug Development and Scientific Communication	Pharmacology and Pharmacotherapy	Core/compulsory
Skincare and Makeup Cosmetics	Pharmaceutical Technology and Legislation, with Laboratory of Pharmaceutical Technology	Core/compulsory
Medical Devices	Medicinal and Toxicological Chemistry II	Core/compulsory
	Pharmaceutical Legislation, Professional Ethics and Pharmacy Management, with Laboratory of Compounding	Core/compulsory
	Toxicology and pharmacovigilance	Core/compulsory
Pharmacy Services	General Pathology and Pathophysiology	Core/compulsory
	Pharmacology and Pharmacotherapy	Core/compulsory
	Analytical Methodologies for Pharmacy and Laboratory of Analytical Methodologies	Core/compulsory
	Toxicology and pharmacovigilance	Core/compulsory
Personalized Pharmacotherapy	Pharmacology and Pharmacotherapy	Core/compulsory
Advanced Drug Delivery Systems	Pharmaceutical Legislation, Professional Ethics and Pharmacy Management, with Laboratory of Compounding	Core/compulsory
Qualitative inorganic analysis according to Pharmacopoeia and Laboratory of qualitative inorganic analysis	General Inorganic Chemistry and Stoichiometry	Core/compulsory
Organic Chemistry	General Inorganic Chemistry and Stoichiometry	Core/compulsory
General Pharmacology And Pharmacognosy	Human Anatomy	Core/compulsory
	Biology and basic genetics	Core/compulsory
	Plant biology and Pharmaceutical botany	Core/compulsory